REVISION OF THE HALIPLIDAE (COLEOPTERA) OF THE AUSTRALIAN REGION AND THE MOLUCCAS.

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The Haliplidae of the Australian region and the Moluccas are revised. Fifteen species are recognized, of which *Haliplus wattsi*, *Haliplus hydei*, *Haliplus storeyi* and *Haliplus timmsi* are described as new. A key to the species is provided and distribution maps are given. Types of most species have been studied. Lectotypes have been designated for *Haliplus signatipennis* Régimbart and *Haliplus oberthuri* Guignot. *Haliplus nicholasi* Watts is considered a junior synonym of *Haliplus ferruginipes* Régimbart and *Haliplus nigrolineatus* Wehncke a junior synonym of *Haliplus testudo* Clark.

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Recently Watts (1988) revised the Australian Haliplidae. He recognized eight species, of which four were described as new. Because there are a few more species outside Australia, but belonging to the Australian faunal region, it seemed useful to me to treat and illustrate these species together with the Australian ones. Furthermore I would like to propose some additions to Watts' revision.

This revision treats the species present in Australia, New Guinea, Seram and New Caledonia. No Haliplidae are known from the other islands in the region or from New Zealand.

Methods

The methods used are those of Vondel (1991). The terms used are explained in Figs 1 and 2.

Material

Material from the region, especially outside Australia, is usually rare in the collections of the institutions listed below. Expeditions by Michael Balke and Lars Hendrich to West New Guinea, very successful in collecting various water beetles, did not produce Haliplidae. Manfred Jäch could collect only one *Haliplus* during his recent water beetle expedition to the Central Moluccas (Ambon, Seram).

Data on ecology are seldom present on labels. According to Lawrence *et al.* (1987: 322) Australian Haliplidae are algal-feeders and bottom-dwellers and are usually found in lentic fresh water, which in general also applies to most non-Australian members of this family.

The material I had access to originates from the following institutional and private collections:

ANIC – Australian National Insect Collection, Canberra, Australia.

BMNH – Natural History Museum, London, UK.

BPBM – B. P. Bishop Museum, Honolulu, Hawaii, USA.

CNCI – Canadian National Collections, Ottawa, Ontario, Canada.

CV – Collection B. J. van Vondel, Hendrik-Ido-Ambacht, The Netherlands.

CW – Collection Dr C. H. S. Watts, Adelaide, South Australia, Australia.

ISNB – Institut Royal des Sciences Naturelles de Belgique, Brussels, Belgium.

MCZC – Museum of Comparative Zoology, Cambridge, Massachusetts, USA.

MNHN – Muséum National d'Histoire Naturelle, Paris, France.

MUNC – Memorial University of Newfoundland, St. John's, Canada.

MVMA – Museum of Victoria, Abbotsford, Victoria, Australia.

NHMV – Naturhistorisches Museum, Vienna, Austria.

QMBA – Queensland Museum, South Brisbane, Queensland, Australia.

QPI – Queensland Department of Primary Industries, Mareeba, Queensland, Australia.

RMNH – Nationaal Natuurhistorisch Museum, Leiden, Netherlands.

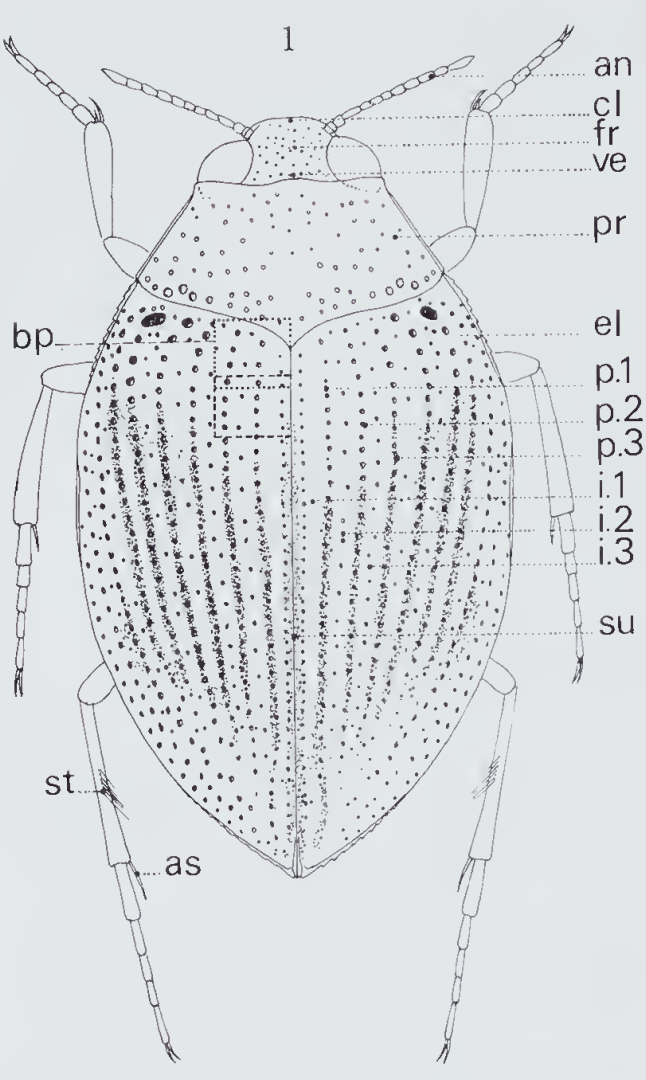


FIGURE 1. *Haliplus wattsi*, dorsal view: an, antenna; as, apical spur; bp, location of basal punctures, illustrated for each species; cl, clypeus; el, elytron; fr, frons; i.1, i.2, i.3, etc, interval 1, 2, 3 etc; pr, pronotum; p.1, p.2, p.3, etc., primary puncture-row 1, 2, 3 etc; st, setiferous striole; su, suture; ve, vertex.

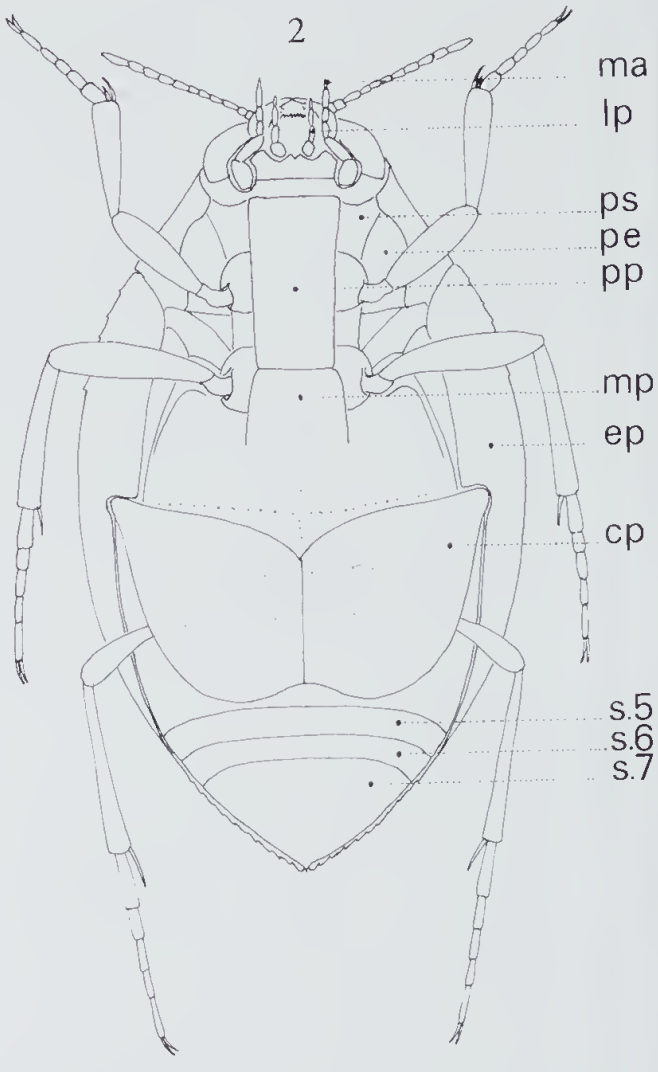


FIGURE 2. *Haliplus wattsi*, ventral view: cp, metacoxal lobe (or coxal plate); ep, elytral epipleuron; mp, metasternal process; pe, proepisternum; pp, prosternal process; ps, prosternum; s.5, s.6, s.7, sternite 5, 6, 7 (last sternite).

SAMA – South Australian Museum, Adelaide, South Australia, Australia.

SMFD – Forschungsinstitut und Naturmuseum Senckenberg, Frankfurt am Main, Germany.

UQIC – University of Queensland, Brisbane, Queensland, Australia.

UZMH – Zoological Museum, Helsinki, Finland.

ZMUC – Zoological Museum, Copenhagen, Denmark.

Systematic Section

The Haliplidae are represented in this region by only one genus: *Haliplus* Latreille. The genus *Haliplus* is divided into six subgenera, of which three occur in the Australian region. Guignot (1935a) erected the subgenus *Phalilus* for *H. oberthuri*. Guignot (1955) assigned *H. bistriatus*, *H. fuscatus* and *H. gibbus* to the subgenus *Neohaliplus* Netolitzky (1911).

The remaining species belong to the subgenus *Liaphlus* Guignot (1928).

The species below assigned to the subgenera *Phalilus* and *Neohaliplus* seem to form a group having a combination of characters, which is so far not found outside the Australian region. Most characteristic of the species in this group is the lack of genal lines behind the eyes while all other world Haliplidae have one or two genal lines. The type-species of *Neohaliplus*: *Haliplus lineatocollis* (Marsham) has two genal lines. Further study, based on a worldwide survey, is needed to determine if the Australian species indeed belong

to *Neohaliplus*, as they show strong differences with the palaearctic species of *Neohaliplus*. The species in the subgenus *Liaphlus* have two genal lines. Representatives of *Liaphlus* in the presently used context are spread worldwide, but according to Beutel & Ruhnau (1990) there is, so far, no evidence for the monophyly of this subgenus.

The Australian subgenera in their present context can be distinguished by the following characters:

1 — Pronotum with basal plicae (Fig. 3), right paramere of male without apical digitus (Fig. 14)... 2
— Pronotum without basal plicae (Fig. 70), right paramere of male with apical digitus (Fig. 78)..... .....*Liaphlus*
2 — Last abdominal sternite with medial ridge (Fig. 10, 22).....*Phalilus*
— Last abdominal sternite without medial ridge..... .....*Neohaliplus*

After the examination of about 390 specimens, including types of all species except *Haliplus ferruginipes* Régimbart and *Haliplus bistriatus* Wehncke, I recognize the following species:

Haliplus oberthuri (*Phalilus*) Guignot, 1935b
Haliplus storeyi (*Phalilus*) **sp. n.**
Haliplus hydei (*Neohaliplus*) **sp. n.**
Haliplus fuscatus (*Neohaliplus*) Clark, 1862
Haliplus gibbus (*Neohaliplus*) Clark, 1862
Haliplus bistriatus (*Neohaliplus*) Wehncke, 1880
Haliplus australis (*Liaphlus*) Clark, 1862
Haliplus wattsi (*Liaphlus*) **sp.n.**
Haliplus testudo (*Liaphlus*) Clark, 1862
Haliplus nigrolineatus Wehncke, 1883. **syn. n.**
Haliplus signatipennis (*Liaphlus*) Régimbart, 1891
Haliplus ferruginipes (*Liaphlus*) Régimbart, 1891
Haliplus nicholasi Watts, 1988. **syn. n.**
Haliplus alastairi (*Liaphlus*) Watts, 1988
Haliplus timmsi (*Liaphlus*) **sp. n.**
Haliplus stepheni (*Liaphlus*) Watts, 1988
Haliplus sindus (*Liaphlus*) Watts, 1988

Key To The Species Of Haliplidae Of The Australian Region And The Moluccas

1 — Pronotal base usually with longitudinal plicae. Between plicae strongly impressed (Fig. 3). Prosternal process posteriorly strongly impressed in middle (Fig. 7).....2
— Pronotal base without longitudinal plicae (Fig. 70). Prosternal process not strongly impressed in middle (Fig. 74).....8
2 — Last abdominal sternite with strong longitudinal ridge or keel.....3
— Last abdominal sternite without ridge or keel.....4
3 — Pronotal plicae absent or hardly recognizable (Fig. 15), base of pronotum strongly and coarsely punctured. Last sternite with clearly visible ridge in posterior half, which is hardly visible in lateral view (Figs 22, 23).....*Haliplus storeyi*
— Pronotal plicae long and strongly bent (Fig. 3), base of pronotum moderately punctured. Last sternite with strong ridge, which is also clearly visible in lateral view.....*Haliplus oberthuri*
4 — Pronotal plicae long, base of elytral puncture-row 5 strongly grooved.....5
— Pronotal plicae short and straight, base of elytral puncture-row 5 at most slightly grooved.....6
5 — Pronotal basal plicae straight at base and anteriorly hardly curved. Pronotum basally and anteriorly at most vaguely darkened (Fig. 27). Elytron with vague, hardly interrupted, dark lines on primary puncture-rows. Metasternal process in middle with dense hairy punctures (Fig. 31). Male: protarsal claws clearly unequal in length (Fig. 30); left paramere without recognizable solid digitus and without hairs on apex (Fig. 34); penis narrow, tip slightly widened, inner side gradually curved to top (Fig. 35).....*Haliplus hydei*
— Pronotal basal plicae curved and strongly bent inwards before base. Pronotum distinctly darkened along base and along anterior edge (Fig. 57). Elytron with distinct interrupted dark lines on primary puncture-rows. Metasternal process in middle without dense hairy punctures (Fig. 61). Male: protarsal claws equal in length (Fig. 60); left paramere with solid digitus (sometimes wide and then not always clearly recognizable) with hairs on top (Fig. 64 or 67); penis wider in middle or nearly parallel, inner side abruptly bent before top (Fig. 65 or 68).....*Haliplus bistriatus*
6 — Females.....*Haliplus fuscatus* or *H. gibbus*
— Males.....7
7 — Penis very narrow (Fig. 45).....*Haliplus fuscatus*
— Penis broad (Fig. 55).....*Haliplus gibbus*
8 — Pronotum with longitudinal dark mark in middle.9
— Pronotum with dark mark at most anteriorly.....10
9 — Secondary punctures on elytron weak and sparse. Anterior elytral margin at most weakly serrate (Fig. 97). Specimens from New Guinea..... .....*Haliplus signatipennis*
— Secondary punctures on elytron very strong and dense, almost as strong as primary punctures. Anterior elytral margin clearly serrate (Fig. 106). Specimens from Seram.....*Haliplus signatipennis*
10 — Uniformly yellow-brown. Pronotum with lateral margins serrate (Fig. 147). Prosternal process impressed in middle (Fig. 151).....*Haliplus sindus*
— Elytron usually with dark marks or stripes, but at least with darkened punctures. Pronotum with lateral margins not serrate. Prosternal process not impressed in middle.....11

11 — Elytral puncture-row 5 basally ending in deep transverse impression (Fig. 118).....12
— Elytral puncture-row 5 basally at most with few punctures standing close together or more or less confluent.....14

12 — Elytron with dark band along base reaching to puncture-row 5 (Fig. 136). Pronotum with or without anterior dark mark (Fig. 136)..... .....*Haliplus stepheni*
— Elytral base at most with dark mark near puncture-row 4. Pronotum without marks.....13

13 — Metasternal process flat, at most with some strong punctures on both sides close to each other (Fig. 122). Elytron with secondary punctures near base of primary row 5 strong, basal punctures of primary row 6 strong. Elytron usually with well defined maculation (Fig. 118)...*Haliplus alastairi*
— Metasternal process with clear pit on both sides (Fig. 131). Elytron with secondary punctures near base of primary row 5 weak. Basal punctures of primary row 6 weak. Elytron usually with interrupted dark lines, which are rarely connected by vague marks (Fig. 127).....*Haliplus timmsi*

14 — Elytron with extensive maculation, base broadly darkened to puncture-row 5 (Fig. 112)..... .....*Haliplus ferruginipes*
— Elytron without extensive maculation, base not distinctly darkened.....15

15 — Proepisternum strongly and densely, sometimes even coarsely punctured. Prosternal process usually slightly but gradually widening anteriorly, not clearly narrowed before coxae (Fig. 83). Last sternite with strong punctures on most of its surface. Male: left paramere with small solid digitus (Fig. 85).....*Haliplus wattsi*
— Proepisternum at most weakly punctured in anterior part. Prosternal process slightly narrowed before coxae, more or less sinuate, anteriorly about as wide as posteriorly. Last sternite with moderately strong to weak punctures on about apical half.....16

16 — Elytron usually without dark stripes on primary puncture-rows, only punctures darkened (Fig. 70). Row of secondary punctures along suture very dense and in irregular row, elytral interval 2 with complete row of secondary punctures, interval 4 with sparser puncture-row. Metasternal process with lateral rows of strong punctures, which usually lie in slight impression (Fig. 74). Male: left paramere with small solid digitus (Fig. 76).....*Haliplus australis*
— Elytron with continuous or hardly interrupted dark stripes on primary puncture-rows (Fig. 88). Row of secondary punctures along suture dense and in regular row, interval 2 with about 6–12 punctures and interval 4+6 only anteriorly with a few punctures. Metasternal process with clear lateral impressions (Fig. 92). Male: left paramere without solid digitus (Fig. 94).....*Haliplus testudo*

Description Of Species

Haliplus oberthuri Guignot
(Figs 3–14)

Haliplus oberthuri Guignot, 1935a: 165. Lectotype ♂ (here designated) 'N. Caled.; TYPE; Det. Dr Guignot, *Haliplus* sg. *Phalilus oberthuri* Guign., type; *bistriatus* Fauvel' [Marais de l'anse Vata près Nouméa] (MNHN)[examined]

Haliplus bistriatus; sensu Fauvel 1883: 335, nec Wehncke 1880. [Misidentification]

Haliplus bistriatus; Guignot 1935a: 36, 1935b: 164; Watts 1988: 25.

Haliplus oberthuri; Guignot 1955: 290.

Diagnosis

This species is easy to distinguish from other species with pronotal plicae by the strong ridge on last sternite.

Description

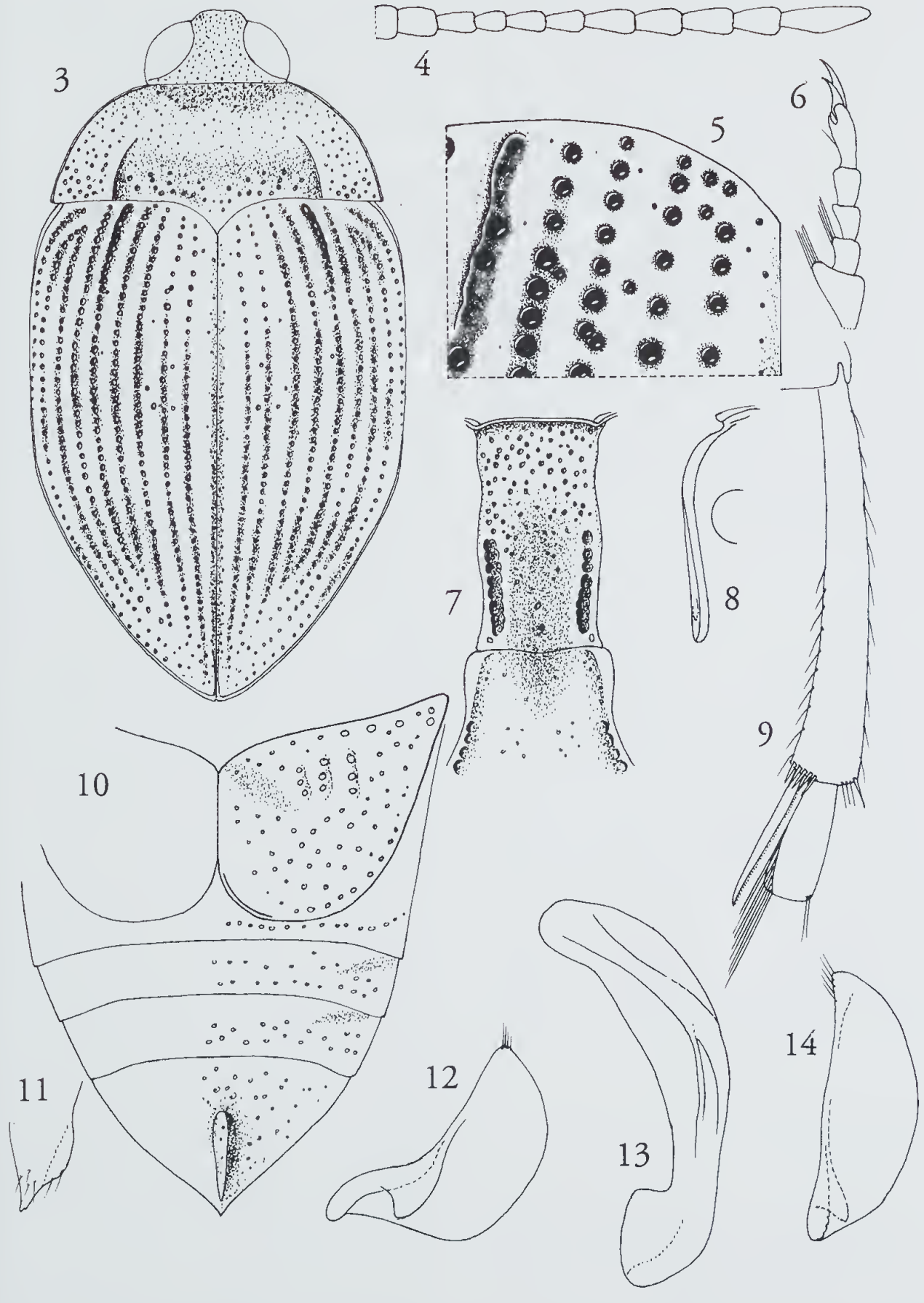
Length 3.0–3.3 mm, width 1.6–1.9 mm. Body broad, parallel in middle (Fig. 3).

Head: Yellow-red, antenna yellow (Fig. 4), palpi yellow, maxillary palpus with last segment more than half length of penultimate segment. Punctation anteriorly dense, sparser on vertex. Distance between eyes 1.2x width of one eye.

Pronotum: Yellow-red, dark blotch along anterior margin. Lateral border strongly convex, finely margined, front corners strongly bent downwards. Base wider than base of elytra, long curved plicae at base reaching over half length of pronotum, strongly impressed between plicae. Punctation on disc dense, strong basally (Fig. 3).

Elytra: Yellow-red, dark lines on primary puncture-rows 1+2 interrupted between dark punctures in basal part, on rows 3–7 continous, on rows 8+9 widely interrupted (Fig. 3). Primary punctures except in basal part of row 1+2 very dense and strong. About 45 punctures in row 1. Basal 6–10 punctures of row 5 confluent, forming clear plica. Secondary punctures very sparse and usually very small. All punctures darkened except in unstriped parts of outer rows. Suture apically briefly margined. Laterally completely margined, margin in middle hidden from above.

Underside: Body yellow-red; legs yellow-red, darkened towards coxae; elytral epipleura yellow, reaching sternite 5, strongly punctured in anterior and posterior part. Prosternal process wide and irregularly parallel-sided, strongly impressed in



FIGURES 3–14. *Haliplus oberthuri*, Paralectotype ♂: **3**, dorsal view; **4**, antenna; **5**, punctures near elytral base and suture; **6**, tarsus of male fore-leg; **7**, prosternal and metasternal process; **8**, prosternal process in lateral view; **9**, hind tibia; **10**, metacoxal lobes and sternites; **11**, last sternite in lateral view; **12**, left paramere; **13**, penis; **14**, right paramere.

apical half, strong punctured grooves on marginal ridges, densely and strongly punctured on anterior half, clearly margined on anterior edge (Fig. 7, 8). Metasternal process with lateral ridges, formed by row of strong punctures, strongly impressed towards apical part, very sparsely and weakly punctured (Fig. 7). Metacoxal lobes widely rounded at apical part, finely margined on apical corner, punctures fairly strong and dense, in central part some coarse punctures (Fig.10). Punctures on sternite 5+6 not forming clear row, last sternite with strong ridge in middle (Fig.10, 11). Hind tibia without setiferous striole, longer tibial spur clearly longer than first tarsal segment (Fig. 9).

Male: Pro- and mesotarsomeres 1–3 widened, tarsomere 1 more dilated ventrally, only tarsomeres 1+2 with sucker hairs on ventral side. Protarsal claws unequal in length (Fig. 6), mesotarsal claws slightly unequal in length. Penis and parameres as in Figs 12–14.

Biology

The type material is found in a marsh (Fauvel 1883: 335).

Distribution (Fig. 153)

New Caledonia. Australia: Queensland. The specimen I have seen labelled 'New Zealand, N. Cal.' is obviously mislabelled.

Material examined: New Caledonia: 1 ♂, lectotype; 1 ♂, N.elle Caledonie, Noumea, ex coll. Gambey, R. Oberthur ded., paratype, *Haliplus* (*Phalilus*) *oberthuri* Guignot (MNHN); 1 ♂, Coll. E. Witte, Australien; 1 ♂, Coll. E. Witte, *bistriatus*, N. Cal., N. Seeland [obviously mislabelled](SMFD). Australia: 1 ♀, Yungaburra, Q., Atherton Tab., Harvard Exp. Darlington, *Haliplus stepheni* ms.nom, det. C. Watts (MCZC); 1 ♂, Bne [Brisbane], *H. fuscatus* Clark, *Haliplus stepheni ms.nom*, det. C. Watts 84 (CV); 1 ♂, unlabelled (QMBA).

Haliplus storeyi sp.n.
(Figs 15–26)

Type material: ♂ Holotype: Australia, N.T., 6 km E. Humpty Doo, 9.ii–4.iii.1987, R. I. Storey, *Haliplus bistriatus* Wehneke, det. C. Watts 87, T.12700 (QMBA); Paratypes: 5 ♀, same data as holotype (3 in QPI, 2 in CV).

Diagnosis

This species differs from other species with pronotal plicae by the ridge on last sternite and from *H. oberthuri* by the faintly impressed pronotal plicae and its smaller size.

Description

Length 2.4–2.5 mm, width 1.2–1.3 mm. Body broad, parallel in middle (Fig. 15).

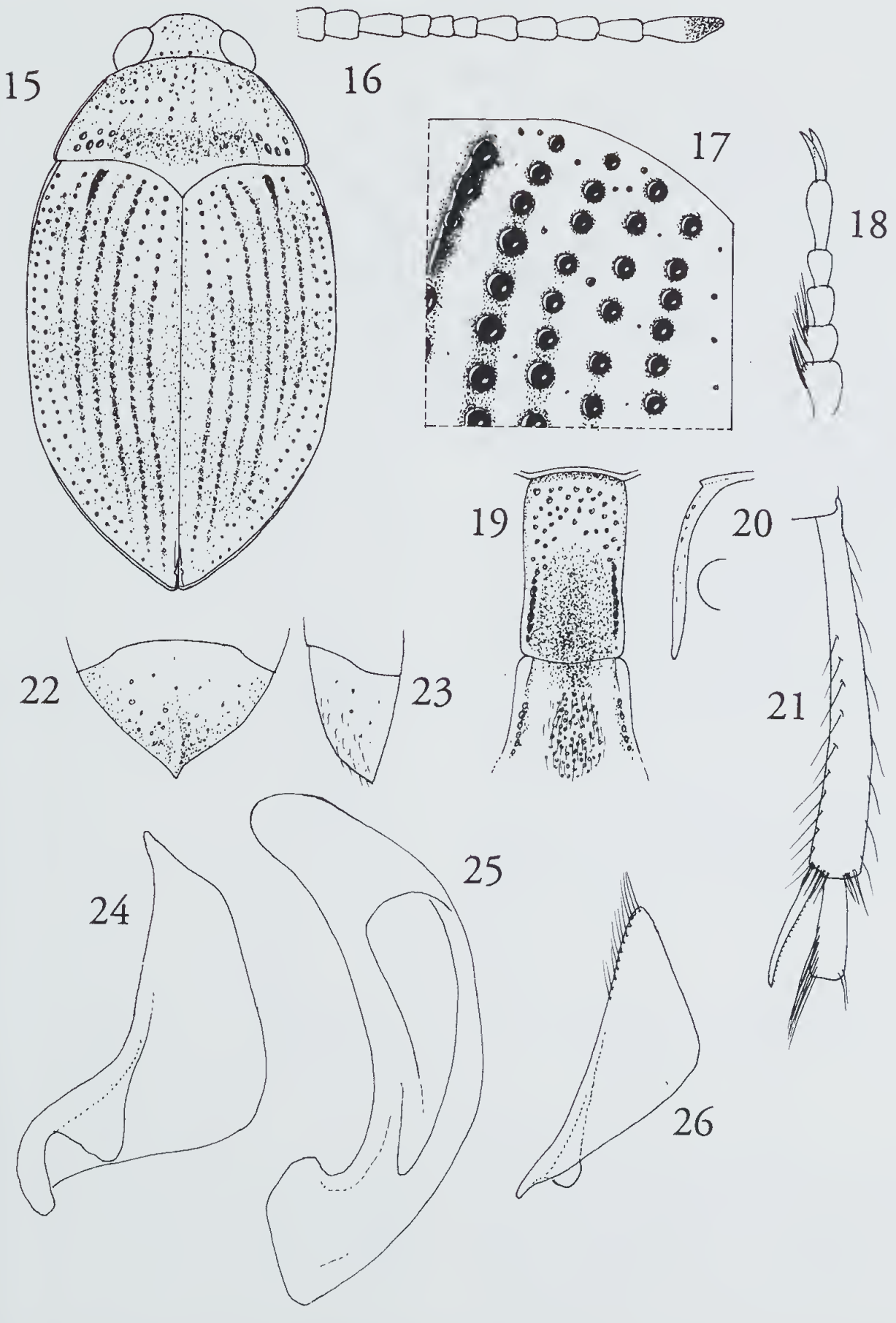
Head: Yellow-red, weakly punctured. Antenna yellow, distal half of last segment darkened (Fig. 16), palpi yellow, maxillary palpus with last segment about half length of penultimate segment. Distance between eyes 1.5x width of one eye.

Pronotum: Yellow-red to yellow-brown. Lateral borders strongly convex, finely margined, front corners strongly bent downwards, hind corners rectangular to slightly rounded. Long plicae at base hardly visible or usually absent. Strongly impressed along base. Moderately strongly, along base strongly, densely and in hind corners coarsely punctured (Fig. 15).

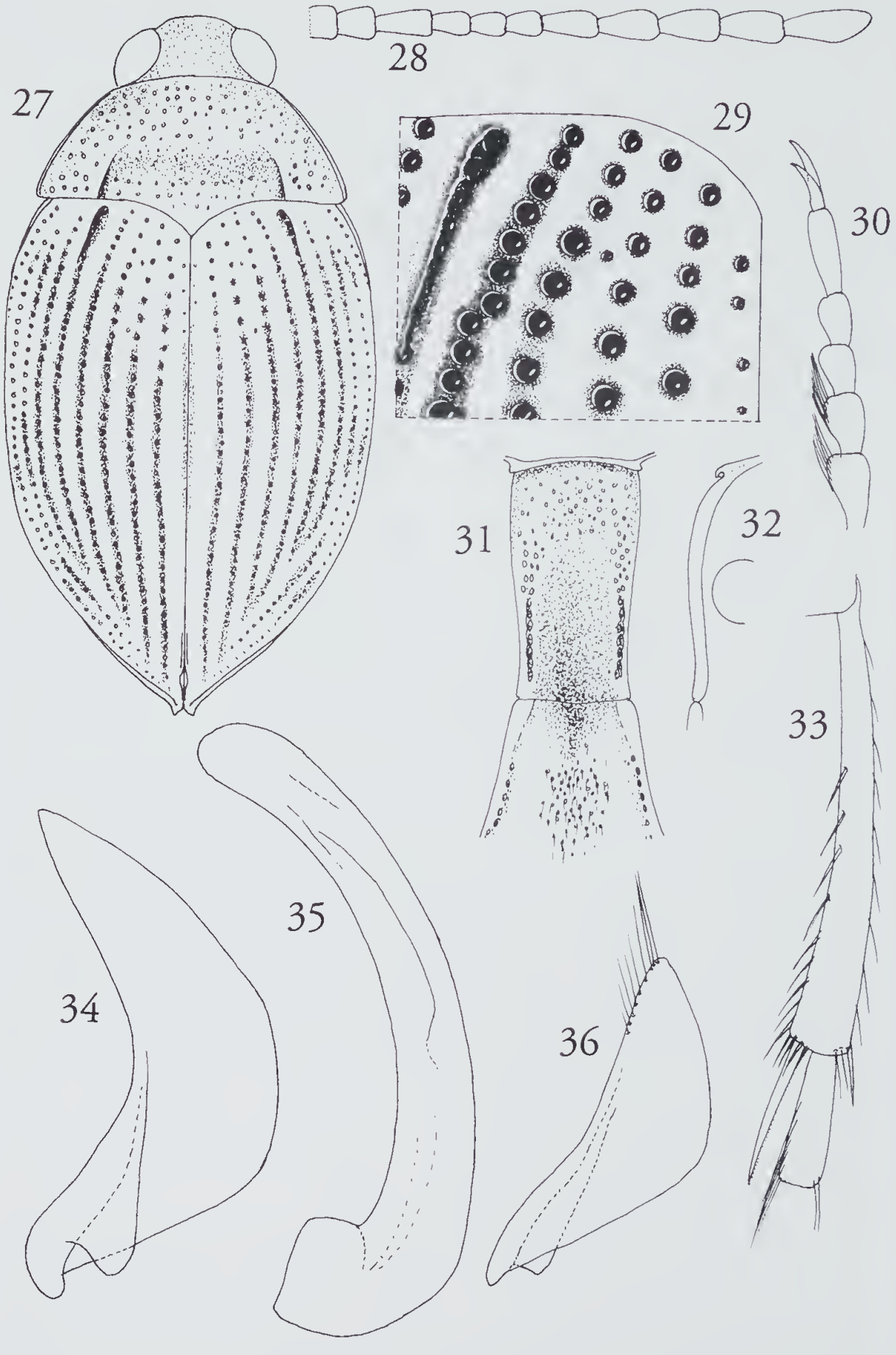
Elytra: Yellow-red to yellow-brown, vague transverse maculation in middle and in apical part (Fig. 15). Primary punctures strong and moderately dense. About 29 punctures in row 1. Basal 6–7 punctures of row 5 confluent, forming clear plica. Secondary punctures sparse and usually very small along suture, almost absent on intervals. All punctures darkened except in parts of outer rows. Apical part of suture shortly margined and with blunt dorsal tooth. Completely margined, margin in middle invisible from above.

Underside: Body yellow-brown to brown, elytral epipleura yellow-brown, reaching sternite 5, with strong puncture-row in posterior part and two strong rows in anterior part. Legs yellow-red to yellow-brown, slightly darkened towards coxae. Prosternal process wide and parallel-sided, strongly impressed in apical half, strong punctured grooves on marginal ridges, densely and strongly punctured on anterior half, clearly margined on anterior edge (Figs 19, 20). Metasternal process with lateral ridges, formed by row of strong punctures, only impressed anteriorly, very densely punctured and hairy in middle (Fig. 19). Metacoxal plates not reaching sternite 5, widely rounded at apical part, clearly margined along posterior edge, punctures fairly strong. Fine punctures on sternite 5+6 not forming clear row, last sternite with keel in apical half, strongly punctured (Figs 22, 23). Setiferous striole on dorsal face of hind tibia on about half length, longer tibial spur longer than first tarsal segment (Fig. 21).

Male: Pro- and mesotarsomeres 1–3 widened, tarsomere 1 more dilated ventrally, only



FIGURES 15–26. *Haliplus storeyi*, Holotype ♂: **15**, dorsal view; **16**, antenna; **17**, punctures near elytral base and suture; **18**, tarsus of male fore-leg; **19**, prosternal and metasternal process; **20**, prosternal process in lateral view; **21**, hind tibia; **22**, last sternite; **23**, last sternite in lateral view; **24**, left paramere; **25**, penis; **26**, right paramere.



FIGURES 27–36. *Haliplus hydei.*, Holotype ♂; **27**, dorsal view; **28**, antenna; **29**, punctures near elytral base and suture; **30**, tarsus of male fore-leg; **31**, prosternal and metasternal process; **32**, prosternal process in lateral view; **33**, hind tibia; **34**, left paramere; **35**, penis; **36**, right paramere.

tarsomeres 1+2 with sucker hairs on ventral side. Protarsal claws equal in length (Fig. 18). Penis and parameres as in Figs 24–26.

Biology
Unknown

Distribution (Fig. 155)
Only known from Humpty Doo, Northern Territory, Australia.

***Haliplus hydei* sp.n.**
(Fig. 27–36)

Type-material: Holotype ♂: Cardstone, Qld, 17–23.ii.1966, K. Hyde, *Haliplus bistriatus* Wehncke det. Watts, ANIC No. 111 (ANIC). Paratypes: 10 ♂, 11 ♀, Same data as holotype (17 in ANIC, 4 in CV); 1 ♂, Cardstone, 32 km S. of Ravenshoe, Q, 17.38S, 145.29E, 14.ii.1968, K. Hyde (ANIC); 3 ♂, 1 ♀, Australia, N. Qld, Pinnarendi Stn, 60 km W. of Mt Garnet, 7.ii.1989, D. Heiner (3 in QPI, 1 in CV).

Diagnosis
This species can be distinguished from *H. bistriatus*, *H. fuscatus* and *H. gibbus* by the pronotal plicae, being long and straight at base and male with clearly unequal protarsal claws.

Description
Length 2.7–3.0 mm, width 1.4–1.6 mm. Body oval, parallel to subparallel in middle (Fig. 27).

Head: Yellow-red to yellow-brown, weakly punctured. Antenna yellow (Fig. 28). Palpi yellow to yellow-brown. Distance between eyes about 1.2–1.6x width of one eye.

Pronotum: Yellow to yellow-brown, strongly impressed base between long, curved to almost straight plicae (Fig. 27). Lateral borders finely margined, hind corners rectangular to slightly rounded. Anterior half densely punctured; front and hind corners strongly punctured; basal depression weakly punctured.

Elytra: Yellow-brown to yellow-red. Vague dark hardly interrupted stripes on primary puncture-rows, slightly darkened along middle part of suture. Primary punctures dense and moderately strong, about 40 punctures in row 1. Basal 6–8 punctures of row 5 in clear longitudinal impression (Fig. 29). Puncture-row 7+8 not reaching base, but united just behind base. All punctures darkened except parts of row 8+9. Sparse secondary puncture-row along suture. At most some single secondary punctures on intervals. Central base flat to weakly impressed. Completely margined, margin in middle invisible from above.

Underside: Yellow to yellow-red, slightly darker on prosternal and metasternal process. Legs yellow to yellow-red, slightly darkened towards coxae. Elytral epipleura yellow, reaching to middle of sternite 5, with uncoloured punctures, strong dense puncture-row on narrowed posterior part. Prosternum anteriorly clearly margined. Prosternal process nearly parallel, anteriorly wider than posteriorly, in middle strongly impressed in posterior 2/3, anterior edge strongly margined, lateral ridges with groove formed by row of coarse punctures, anterior part densely and coarsely punctured, in posterior impression unpunctured (Figs 31, 32). Metasternal process diverging posteriorly, anteriorly impressed in middle, weakly to moderately strongly punctured, in middle usually slightly hairy, laterally with fine plicae formed by punctures (Fig. 31). Metacoxal lobes not reaching sternite 5, weakly and sparsely punctured near suture, stronger and denser punctured in lateral part. Sternite 4–6 with posterior irregular puncture-row. Last sternite especially on apex stronger punctured. Metatibia without setiferous striole on dorsal face, but posteriorly with kind of fine ridge on inner side, longer tibial spur about as long as first tarsal segment (Fig. 33).

Male: Pro- and mesotarsomeres 1–3 widened, tarsomere 1 more dilated ventrally, only tarsomeres 1+2 with sucker hairs on ventral side. Protarsal claws clearly unequal in length (Fig. 30). Penis and parameres as in Figs 34–36.

Biology
Unknown.

Distribution (Fig. 155).
Only known from North East Queensland.

Haliplus fuscatus Clark
(Figs 37–46)

Haliplus fuscatus Clark, 1862: 401. Holotype ♀, no data [Clark gives Adelaide as locality] (BMNH) [examined].

Haliplus fuscatus; Zimmermann 1920: 308; 1924: 141; Watts 1985: 27, 1988: 27; Lawrence *et al.* 1987: 322.

Remarks
I failed to find reliable characters to distinguish

between females of *H. fuscatus* and *H. gibbus*. As the holotype of *H. fuscatus* is a ♀, I am not sure whether I have eorreetly assoeiated it with males whieh are treated here as *H. fuscatus*.

Both speeies have more or less the same distribution. It is distinetly possible that the holotype of *H.fuscatus* and the lectotype of *H.gibbus* are eonspecific, in whieh ease at least the ♂ specimens here treated as *H. fuscatus* should belong to an undeseribed species.

Diagnosis

This speeies is elosely related to *H. gibbus* as evidenced by general similarity, although the male has a different penis, whieh is very narrow in *H. fuscatus*.

Description

Length 2.4–3.2 mm, width 1.2–1.8 mm. Body oval, but parallel to subparallel in middle (Fig. 37).

Head: Yellow-brown to brown-red, sparsely punctured. Antenna yellow, last segment slightly darker (Fig. 38). Palpi yellow to yellow-brown. Distanee between eyes about 1.3x width of one eye.

Pronotum: Yellow-brown to brown-red, basally strongly impressed and vaguely darkened between short straight plieae, anteriorly with vague transverse mark. Lateral borders finely margined, hind eorners rounded (Fig. 37). Strongly and moderately densely punetured, in basal depression only few sparse punetures.

Elytra: Yellow-brown to brown-red. Vague markings on primary puneture-rows, along suture and usually on intervals in posterior half and along base to puneture-row 4 (Fig. 37). Primary punctures dense and moderately strong, 25–35 punetures in row 1. Basal 4–5 punetures of row 5 not in clear longitudinal impression, but at most a little eonfluent (Fig. 39). Puneture-row 7+8 not reaehing base, but united just behind base. All punetures darkened exeept parts of row 8+9. Stria (sometimes vague) along anterior 1/3 and posterior 1/5 of suture. Fine seeondary punetures along suture and usually very fine punctures on most of intervals. Surfaee with very fine, hard to reeognize mieropunctuation in both sexes. Body outline in posterior half a little bulbous and there margin not visible from above. Central base weakly impressed. Completely margined.

Underside: Brown-red, darker on prosternal and metasternal proeess. Legs yellow-brown, slightly darkened towards eoxae. Elytral epipleura yellow, reaehing to middle of sternite 5, with uncoloured punetures, only a few punetures on narrowed posterior part, two puneture-rows on anterior part weak and about equal in strength. Prosternum anteriorly elearly margined. Prosternal process parallel, in middle strongly impressed in posterior 3/4, eurved anterior edge strongly margined, laterally with narrow groove formed by row of eoarse punetures, weakly punetured (Fig. 41, 42). Metasternal proeess diverging posteriorly, anteriorly impressed in middle, weakly punctured, laterally with fine plieae formed by punctures (Fig. 41). Metaeoxal lobes not reaehing sternite 5, weakly and sparsely punetured near suture, a little stronger punetured in lateral part. Sternite 4–6 posteriorly with very fine irregular puneture-rows. Last sternite weakly punetured. Metatibia without setiferous striole on dorsal face, longer tibial spur about as long as first tarsal segment.

Male: Pro- and mesotarsomeres 1–3 widened, tarsomere 1 more dilated ventrally, only tarsomeres 1+2 with sucker hairs on ventral side. Protarsal claws equal in length (Fig. 40). Metatarsal elaws short and strongly bent. Penis and parameres as in Figs 44–46.

Female: Metatarsal elaws long and almost straight.

Biology

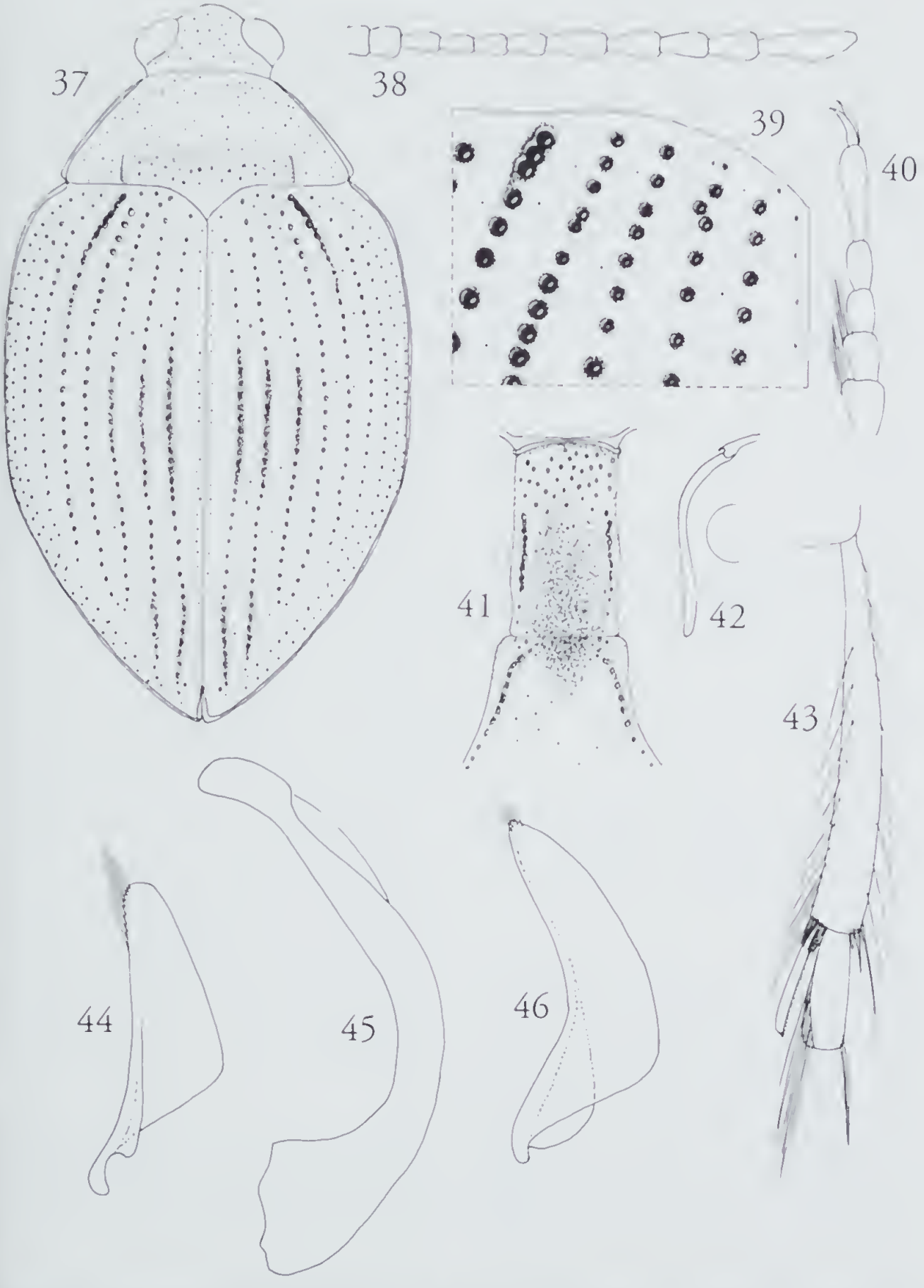
This speeies oeeurs in swamps, temporary ponds, rivers and lakes. A speeimen was found in a trout stomach. It is attraeted to light.

Distribution (Fig. 157)

West Australia, South Australia, Vietoria, New South Wales ?(no males known), Queensland.

Material examined (identifieation based on ♂): Australia: West Australia: 1 ♂, 1 ♀, Biekley Swp, Rottnest Isl., x.1959, D.E. (CW, SAMA); 1 ♂, 1 ♀, Bulldozen, Rottnest Isl., W.A., x.1958, D.E. (CW); 1 ♂, Rottnest Isl., Salmon Swp, x.1958, D.E.; 1 ♀, Rottnest Isl., Barkers Swp, x.1959., D.E. (SAMA); 1 ♀, W.A., Rottnest Isl, x.1931, Harvard Expedition Darlington (MCZC); South Australia: holotype ♀ (BMNH); Victoria: 1 ♂, 5 ♀, Vie. Eildon Weir, ix.1943, F. E. Wilson (5 in MVMA, 1 in CV); 1 ♂, Wyperfield Nat. Park, Lowan Traek, 35.35S, 142.05E, light trap, 16.xi.1973. S. Misko, *Haliplus fuscatus* Clark det. T. A. Weir 1987 (ANIC); Queensland: 1 ♂, 4 ♀, C. Qld, L. Galilee, 20.i.1983, Timms (SAMA).

Females of *H. fuscatus* or *H. gibbus* : Australia: South Australia: 1 ♀, Parra Wirra, ix.1969, C.W. (SAMA); Vietoria: 1 ♀, Eilham, C. Oke; 1 ♀, Birehip; 2 ♀, Carrum, 29.xii.1920, C. Oke; 1 ♀, Coliban R., Trentham, F. E. Wilson; 1 ♀, E.



FIGURES 37–46. *Haliplus fuscatus*, **37**, Holotype ♀; **38–46**, ♂, Rottnest Island: **37**, dorsal view; **38**, antenna; **39**, punctures near elytral base and suture; **40**, tarsus of male fore-leg; **41**, prosternal and metasternal process; **42**, prosternal process in lateral view; **43**, hind tibia; **44**, left paramere; **45**, penis; **46**, right paramere.

Moorabool R., 4 km W. Ballan, 10.vi.1976, Neboiss; 1 ♀, Howitt coll.; 1 ♀, Clarkfield, 1.ix.1-937, F. E. Wilson (MVMA); 1 ♀, Clarkfield, 4.xi.1941, A. D. Butcher, ex trout stomach (CV); 1 ♀, Dimboola, 36.27S, 142.02E, 22.x.1983, J. C. Cardale, at light (ANIC); 1 ♀, Ringwood, *Haliplus gibbus* Clark, *Haliplus fuscatus* det. C. Watts 84; 1 ♀, *Haliplus gibbus* Clk, Howitt Coll. (MVMA); New South Wales: 1 ♀, Forest Reefs (MCZC); 1 ♀, Bogan R., J. Armstrong (SAMA); 1 ♀, Willanora Bridge, 11 km N. of Mossgiel, 33.16S, 144.34E, dry swamp, 21.xii.1970, at light, Britton, Misko & Pullen (ANIC); 1 ♀, Barrenbox Swamp, interior N.S.W., 24.x.1979, Fields (ZMUC); Federal state unknown: 1 ♀, Sandham, x.1935 (ANIC);

Haliplus gibbus Clark
(Figs 47–56)

Haliplus gibbus Clark, 1862: 400. Lectotype ♂ (designated by Watts, 1988), 'S. Aust., Bakewell 59/24' (BMNH)[examined].

Haliplus gibbus; Zimmermann 1920: 308; 1924: 142; Watts 1985: 27, 1988: 26; Lawrence *et al.* 1987: 322.

Remarks

See remarks under *H. fuscatus*.

Diagnosis

This species closely resembles *H. fuscatus*, from which the male can be distinguished by the penis, which is broader in *H. gibbus*. I am not able to distinguish the females.

Description

Length 2.4–3.2 mm, width 1.2–1.6 mm. Body oval, but parallel to subparallel in middle (Fig. 47).

Head: Yellow to yellow-brown or yellow-red, sparsely punctured. Antenna yellow, last segment darker (Fig. 48). Palpi yellow to yellow-brown. Distance between eyes about 1.3x width of one eye.

Pronotum: Yellow to yellow-brown, strongly impressed base slightly darkened between straight plicae, which are 1/4 to 1/3 of length of pronotum, anteriorly usually slightly darkened. Lateral fine margins narrowed anteriorly, hind corners rounded. Anterior half densely punctured, front and hind corners coarsely punctured, in basal depression row of strong punctures (Fig. 47).

Elytra: Yellow-brown to yellow-red. Dark marks on parts of primary puncture-rows, along suture and along base to puncture-row 5 and on intervals. Primary punctures dense and moderately strong, about 30 punctures in row 1. Basal 3–4 punctures of row 5 in weak longitudinal impression (Fig. 49). Puncture-row 7+8 not reaching base, but united just behind base. All punctures darkened except parts of row 8+9. Stria along apical part of suture, sparse row of weak secondary punctures along suture. No discernible secondary punctures on intervals, except a few large ones. Central base flat to weakly impressed. Completely margined.

Underside: Yellow to yellow-red, slightly darker on prosternal and metasternal process. Legs yellow to yellow-red, slightly darkened towards coxae. Elytral epipleura yellow, reaching to middle of sternite 5, with uncoloured punctures. Prosternum anteriorly clearly margined. Prosternal process parallel, in middle strongly impressed in posterior 2/3, anterior edge strongly margined, laterally with groove formed by row of coarse punctures, anterior part densely and coarsely punctured, in posterior impression only weakly punctured (Fig. 49). Metasternal process diverging posteriorly, anteriorly impressed in middle, moderately strongly punctured, laterally with plicae formed by punctures (Figs 51, 52). Metacoxal lobes not reaching sternite 5, weakly and sparsely punctured near suture, stronger and denser punctured in lateral part. Sternite 4–6 at most with a few very fine punctures. Last sternite with only a few very fine punctures, very short fine keel on apical point. Metatibia without setiferous striole on dorsal face, longer tibial spur about as long as first tarsal segment (Fig. 53).

Male: Pro- and mesotarsomeres 1–3 widened, tarsomere 1 more dilated ventrally, only tarsomeres 1+2 with sucker hairs on ventral side. Protarsal claws equal in length (Fig. 50), metatarsal claws short and strongly curved. Penis and parameres as in Figs 54–56.

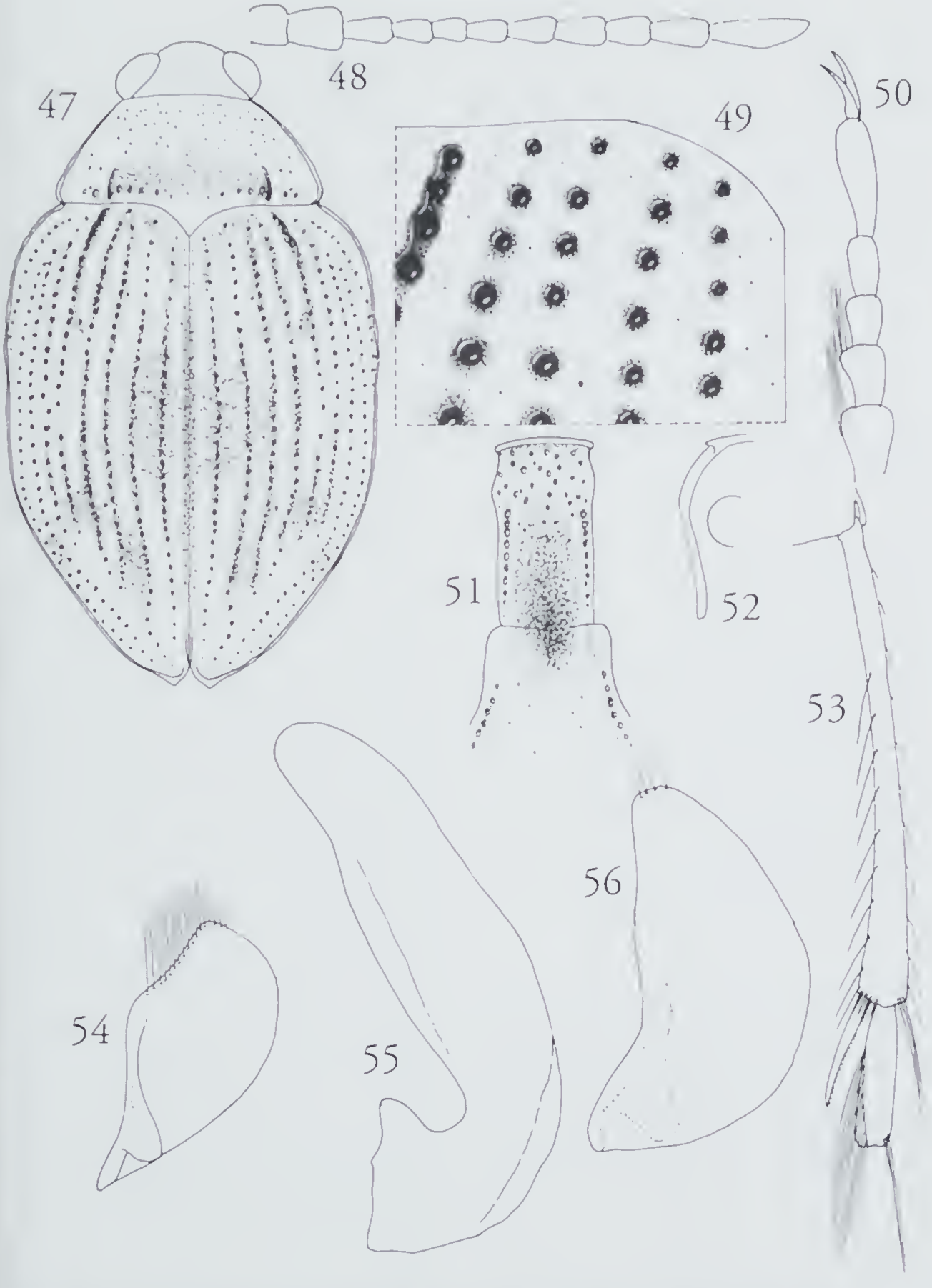
Female: Metatarsal claws long and hardly curved.

Biology

This species occurs in swamps, temporary ponds and rivers and has been collected from submerged vegetation at the margin of slow moving streams (Watts, pers. comm.).

Distribution (Fig. 158)

Western Australia, South Australia, Victoria, Tasmania, New South Wales ? (no males known from this state).



FIGURES 47–56 *Haliplus gibbus*, Lectotype ♂: **47** dorsal view; **48**, antenna, **49**, punctures near elytral base and suture; **50**, tarsus of male fore-leg; **51**, prosternal and metasternal process; **52**, prosternal process in lateral view; **53**, hind tibia; **54**, left paramere; **55**, penis, **56**, right paramere.

Material examined (identifieation based on ♂): Australia: West Australia: 1 ♂, Armadale, vii.1960. D.E. (SAMA); 2 ♂, 1 ♀, Pieton Junetion, Swamp near Ferguson R., 30.xi.1965, Britton & Uther Baker (2 in ANIC, 1 in CV); 1 ♂, 7 km E. of Wuranga, xi.1981, K. & E. Carnaby (ANIC); 1 ♂, Bridgetown, 8.xi.1931, Australia Harvard Expedition, Darlington (MCZC); South Australia: leetotype ♂ (BMNH); 2 ♂, 2 ♀, Williamstown, ix.1961. C. Watts (SAMA); Vietoria: 2 ♂, E. Pomborneit, 24 km ESE Camperdown, temporary pond, viii.1978–ii.1979, P. S. Lake (ANIC); 1 ♂, 1 ♀, E. Vie., Yarra Riv., Warburton, F. E. Wilson; 2 ♂, 1 ♀, Newhill Res., x.1945, F. E. Wilson (MVMA); Tasmania: 1 ♂, 2 ♀, Launeeston, 8.vi.1948 (ANIC); 1 ♂, Launceston (QMBA); 2 ♂, Launeeston; 1 ♂, 3 ♀ (MVMA); 1 ♂, 1 ♀, Launeeston (ISNB); Federal state unknown: 3 ♀ syntypes (BMNH); 4 ♂ [no loeality] (MVMA); 1 ♂, 1 ♀, Sandham, Goudie [?], x.1935 (MVMA, CV).

Haliplus bistriatus Wehneke
(Figs 57–69)

Haliplus bistriatus Wehneke, 1880: 75. Type-material: Not loeated. In the Wehneke eollee-tion in MNHN one ♂ is present originating from Brisbane. In the deseription, however, Adelaide is mentioned as type-loeality.

Haliplus bistriatus sensu Fauvel 1883, nee Wehncke 1880. [Misidentifieation].

Haliplus bistriatus; Fauvel 1883: 335; Zimmermann 1920: 304; 1924: 71; Guignot 1935a: 36; 1935b: 164; Watts 1985: 27, 1988: 25; Lawrenee *et al.* 1987: 322.

Diagnosis

This species ean be distinguished from *H. fuscatus* and *H. gibbus* by the long eurved pronotal plieae, from *H. hydei* by the basally eurved pronotal plieae and the metasternal process not eovered with dense hairy punetures and from *H. oberthuri* and *H. storeyi* by the smooth last sternite. Most males ean be distinguished from those of related speeies by the solid digitus on top of the left paramere.

Description

Length 2.5–3.4 mm, width 1.2–1.6 mm. Body oval, parallel to subparallel in middle (Fig. 57).

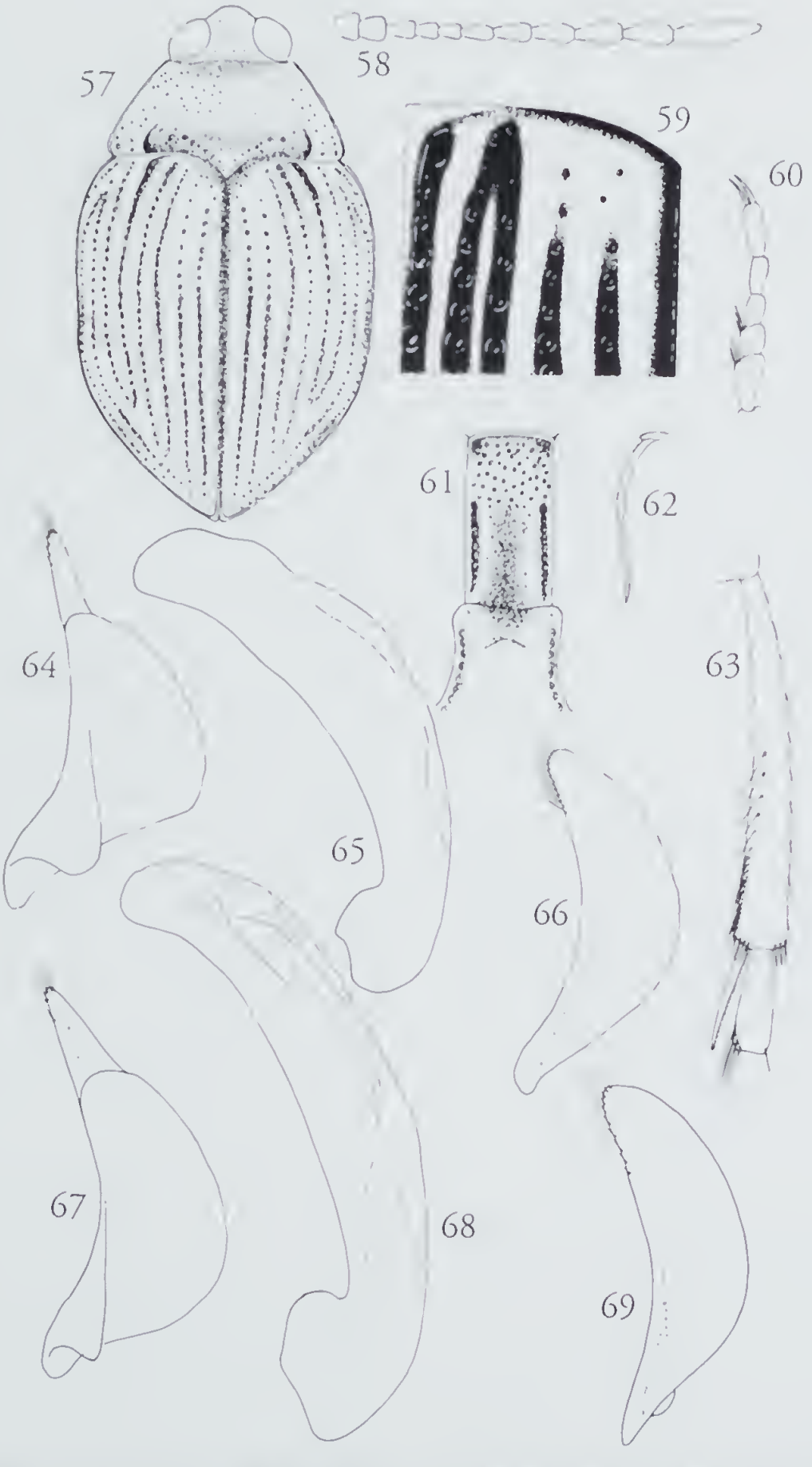
Head: Yellow to yellow-brown or yellow-red, sparsely punetured. Antenna yellow, last segment darker (Fig. 58). Palpi yellow to yellow-brown. Distanee between eyes about 1.2x width of one eye.

Pronotum: Yellow to yellow-brown, strongly impressed base narrowly darkened between long eurved plieae, anteriorly with dark central mark. Lateral borders finely margined, hind eorners rounded. Anterior half densely punetured, front and hind corners eoarsely punetured, in basal depression only a few sparse punetures (Fig. 57).

Elytra: Yellow-brown to yellow-red. Dark interrupted stripes on primary puneture-rows, darkened along suture and along base to puneture-row 5. Primary punetures dense and moderately strong, about 35 punetures in row 1. Basal 6–8 punetures of row 5 in elear longitudinal impression. Puneture-row 7+8 not reaehing base, but united just behind base. All punetures darkened except parts of row 8+9. Stria along anterior 1/3 and posterior 1/5 of suture. No diseernible secondary punetures on intervals. Central base flat to weakly impressed. Completely margined.

Underside: Yellow to yellow-red, slightly darker on prosternal and metasternal proeess. Legs yellow to yellow-red, slightly darkened towards eoxae. Elytral epipleura yellow, reaehing to middle of sternite 5, with uneoloured punetures, strong dense puneture-row on narrowed posterior part. Prosternum anteriorly elearly margined. Prosternal proeess parallel, in middle strongly impressed in posterior 2/3, anterior edge strongly margined, laterally with groove formed by row of eoarse punctures, anterior part densely and eoarsely punetured, in posterior impression only weakly punetured (Figs 61, 62). Metasternal proeess diverging posteriorly, anteriorly impressed in middle, moderately strongly punetured, laterally with fine plieae formed by punetures, longitudinal and oblique baekwards direeted sutural lines visible in middle (Fig. 61). Metaeoxal lobes not reaehing sternite 5, weakly and sparsely punetured near suture, stronger and denser punetured in lateral part. Sternite 4–6 with posteriorly irregular puneture-row. Last sternite especially on apex stronger punctured. Metatibia without setiferous striole on dorsal face, but posteriorly with kind of fine ridge on inner side, longer tibial spur about as long as first tarsal segment (Fig. 63).

Male: Pro- and mesotarsomeres 1–3 widened, tarsomere 1 more dilated ventrally, only tarsomeres 1+2 with sueker hairs on ventral side. Protarsal elaws equal in length (Fig. 60). Penis and parameres as in Figs 64–69. Left paramere with solid digitus (Fig. 64 or 67).



FIGURES 57–69 *Haliplus bistriatus*. **57–66**, Brisbane; **67–69**, Mt Mulligan. **57**, dorsal view; **58**, antenna; **59**, punctures near elytral base and suture; **60**, tarsus of male fore-leg; **61**, prosternal and metasternal process; **62**, prosternal process in lateral view; **63**, hind tibia; **64**, left paramere; **65**, penis; **66**, right paramere; **67**, left paramere; **68**, penis; **69**, right paramere.

Biology

Specimens have been attracted to light in places in open forest.

Distribution (Fig. 154).

Queensland and northern part of Western Australia.

Material examined: Australia: Queensland: 1 ♂, Brisbane, Sharp, Dr Guignot visit 1939 (MNHN); 2 ♂, Caloundra, Qld, 24.iii.1963, C. Watts (CW); 2 ♀, unlabelled (QMBA); 2 ♀, Bne [Brisbane?], *H. testudo* Clark, *Haliplus stepheni ms.nom* det C.Watts 84 (QMBA, CV); 1 ♂, 1 ♀, N. Qld, 21 E. Mareeba, 21.i.1991, at light, R. I. Storey (QPI, CV); 1 ♀, Brisb[ane], Howitt Coll.; 1 ♂, unlabelled, Howitt Coll. (MVMA); 1 ♂, NQ., Mt Spec., ii.1971, J. G. Brooks, *Haliplus stepheni ms.nom.* det. C. Watts 84 (ANIC); 2 ♂, 5 ♀, nr Mt Mulligan, 31.i.1991, Larson & Halfpap (MUNC); Western Australia: 1 ♀, CALM Site 13/4, 12 km S. of Kakumburu Mission, 14.25S, 126.38E, 7–11.vi.1988, T. A. Weir, at light, in open forest (ANIC).

Haliplus australis Clark
(Figs 70–78)

Haliplus australis Clark, 1862: 400. Lectotype ♀ (designated by Watts, 1988), *H. australis* Clark [yellow label], B.M., Type [white round label with red margin], Lectotype [white round label with blue margin], LECTOTYPE Female, *Haliplus australis* Clark 1862, selected by C. Watts, 1984. (BMNH)[examined].

Haliplus australis; Zimmermann 1920: 303; 1924: 141; Watts 1985: 27, 1988: 23; Lawrence *et al.* 1987: 322.

Haliplus testudo; Watts 1985: 27, 1988: 23.

Remarks

Watts (1988) considered this species to be a junior synonym of *H. testudo*. After examination of type material of both names I regard them as separate species.

Diagnosis

Males of *H. australis* have a solid digitus on the apex of the left paramere, while *H.testudo* lacks such a digitus. The penis of *H. testudo* is more curved towards the tip. The elytra of *H. australis* usually have no dark stripes on puncture-rows, while *H. testudo* have well developed dark stripes on elytral puncture-rows.

Description

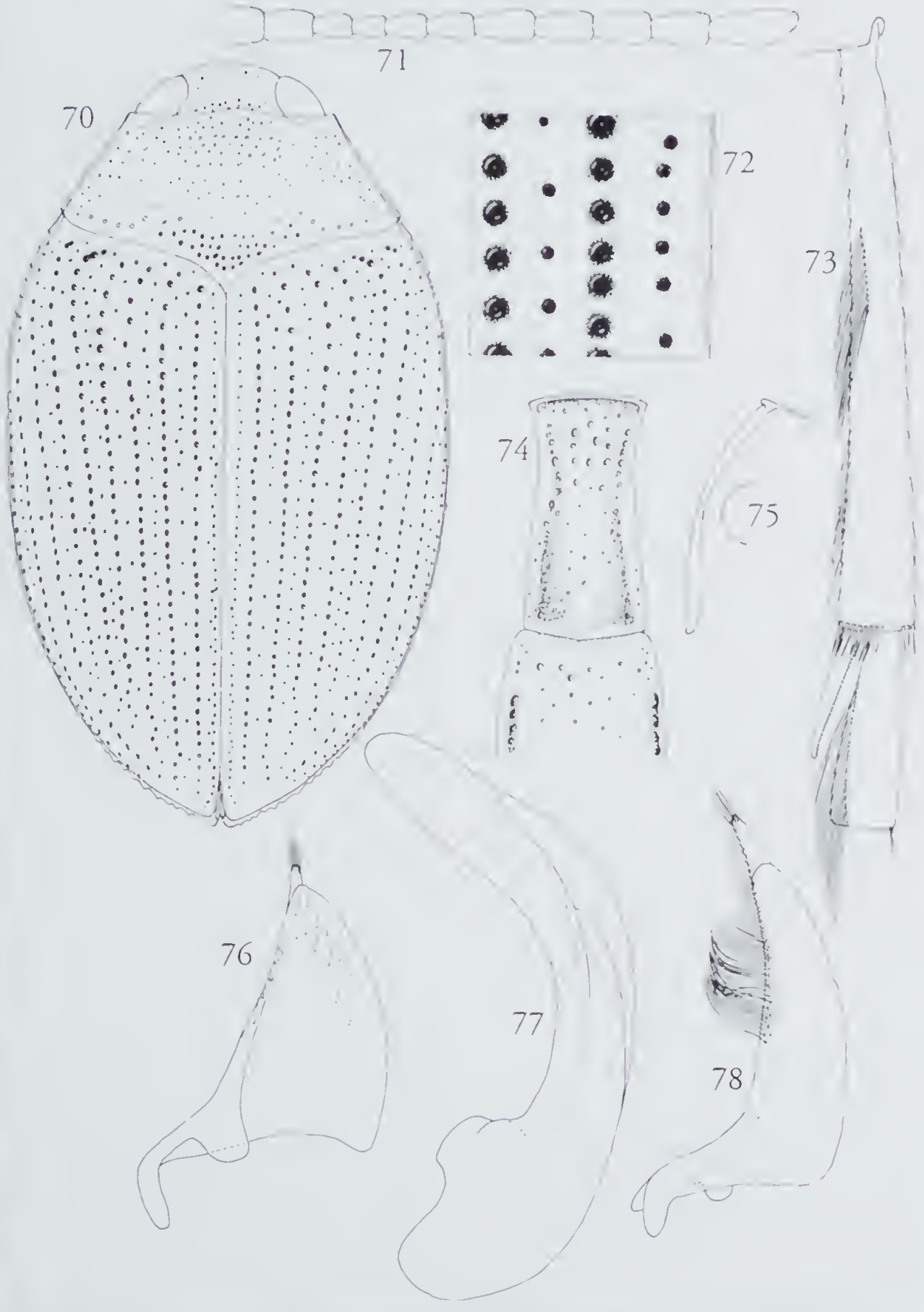
Length 3.7–4.1 mm, width 2.1–2.3 mm. Body wide oval, widest just in front of middle (Fig. 70).

Head: Yellow to yellow-brown, vertex slightly darker, weakly and sparsely punctured, on vertex a little stronger punctured. Antenna yellow (Fig. 71). Palpi yellow, last segment small, 1/3x length of penultimate segment. Clypeus finely margined anteriorly. Distance between eyes 1.3–1.6x width of one eye. Eyes usually partly covered by pronotum.

Pronotum: Yellow to yellow-brown, moderately strongly and densely punctured along base and in middle of anterior part, otherwise weaker and sparser punctured, punctures in central part of base and anterior part darkened. Punctures not stronger than elytral punctures. Anterior margin a little protruding between eyes, posterior margin slightly impressed in middle. Lateral borders straight, finely margined.

Elytra: Yellow without maculation, only suture narrowly brown, punctures darkened but darkening rarely forming continous lines. Primary punctures strong and dense, about 48 punctures in row 1. All punctures with clear hole in middle. Puncture-row 1–7 not much differing in strength, row 8 clearly weaker, row 9+10 very weak and hardly darkened. Distance between row 10 and 9 and between row 9 and 8 clearly more than between row 8 and 7. First three basal punctures of row 5 confluent. Secondary punctures strong, dense and partly doubled in sutural row on interval 1, dense in interval 2, 3, 5 and 7, less dense in interval 4, in interval 6+8 only a few punctures in basal and posterior part, in posterior part of interval 9 continous dense row of weak punctures, in row 10 a few weak punctures in central part. Completely margined, anteriorly with about seven very weak flat teeth, in apical part with about twelve small sharp teeth.

Underside: Yellow to yellow-brown, elytral epipleura yellow with uncoloured punctures. Legs yellow to yellow-brown, slightly darkened towards coxae. Prosternal process parrallel-sided, slightly narrowed in central part, along both margins impressed in posterior half, anterior edge clearly margined, strongly punctured along margins and with a few punctures in middle part (Figs 74, 75). Prosternum strongly punctured and anteriorly finely margined. Proepisternum at most weakly punctured in anterior part. Metasternal process flat in middle, strong punctures on both sides partially confluent, more or less forming short impressions, which do not reach anterior margin, otherwise weakly punctured (Fig. 74). Metacoxal lobes fairly



FIGURES 70–78. *Haliplus australis*, **70–75**. Lectotype ♀: **76–78**. Paralectotype ♂: **70**, dorsal view; **71**, antenna; **72**, punctures near elytral base and suture; **73**, hind tibia; **74**, prosternal and metasternal process, **75**, prosternal process in lateral view; **76**, left paramere; **77**, penis; **78**, right paramere.

strongly punctured, in sutural area weaker punctured. Outer protarsal claws of males seem to have tooth on inner margin. Setiferous striole on dorsal face of hind tibia about 1/8x length of tibia (hard to see), it looks like there is on inner margin another setiferous striole over apical half, longer tibial spur about 2/3x length of first tarsal segment (Fig. 73).

Male: Pro- and mesotarsomeres 1–3 widened and with sucker hairs on ventral side. Penis and parameres as in Figs 76–78. Left paramere with small solid digitus (Fig. 76).

Biology

Specimens occur in rivers and ponds and have been found in trout stomachs. Watts (pers. comm.) found specimens in a well shaded woodland pond that dries out completely in summer.

Distribution (Fig. 159)

Australia: South Australia, Victoria, Queensland.

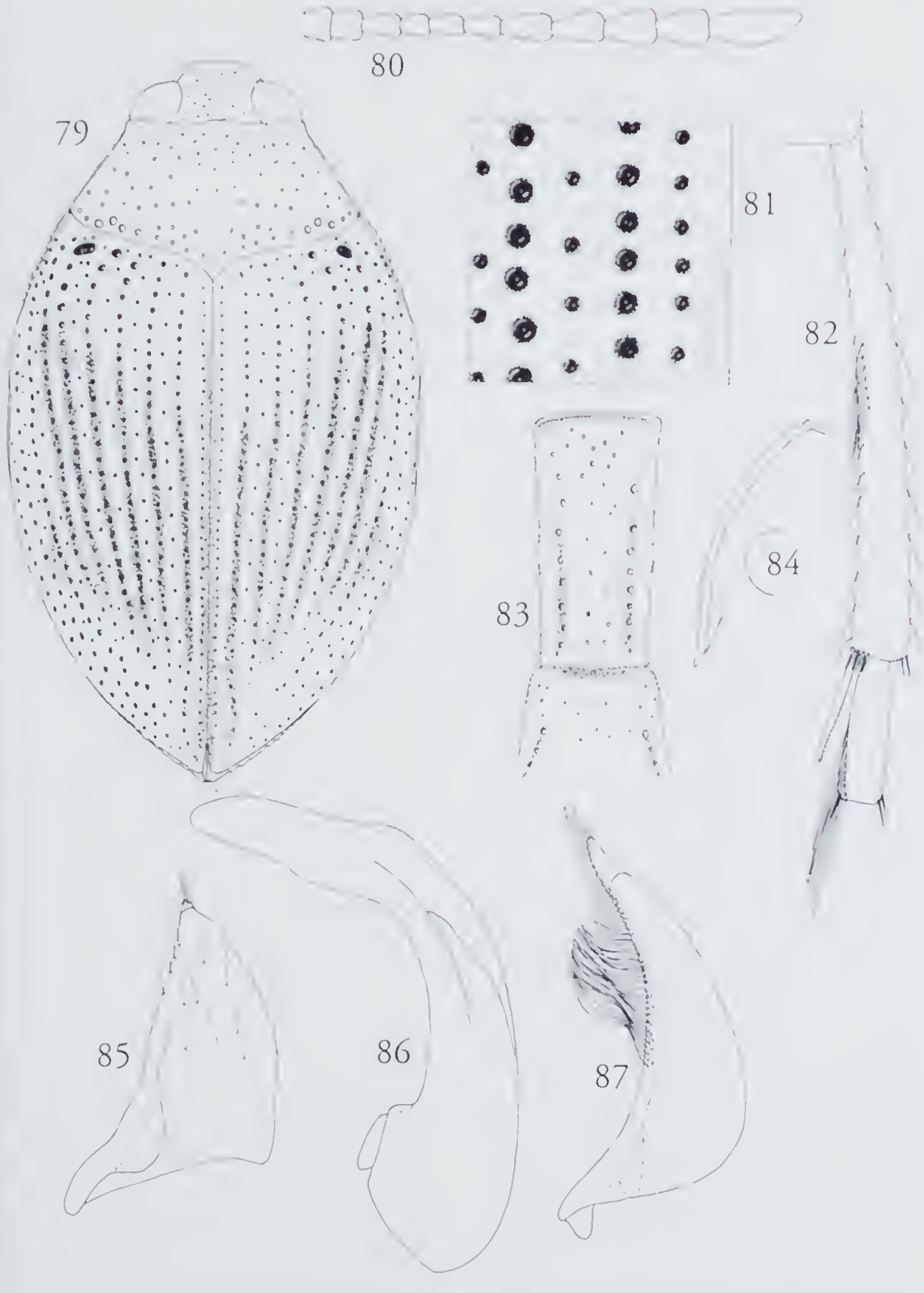
Material examined: Australia: Federal state unknown: Lectotype ♀ (BMNH); 2 ♂, 3 ♀, Howitt coll. (MVMA); Queensland: 1 ♀, 1 ♂, Glen Valley, ii.1951, VI-, F. E. Wilson (CW); South Australia: 2 ♂ syntypes, S. Australia, S.s., 67–56, *H. australis* Clark, Australia (BMNH); 1 ♂, 2 ♀, Chain of Ponds, 4.xii.1989, C.W. (CW); 1 ♂, Cheltenham, 20.iii.1925 (MVMA); Victoria: 1 ex., Flowerdale, 22.i.1968, R. E. Parrott (CNCI); 2 ♂, Jamieson, 20.iv.1943, F. E. Wilson; 1 ♀, Yarra Riv., Melgrove, 4.i.1952, F. E. Wilson; 2 ♂, 6 ♀, Glenmaggie, Weir, iv.1957, F. E. Wilson; 1 ♂, 1 ♀, Lake Wendourec, ii.1945, F. E. Wilson; 2 ♂, Eildon Weir, ix.1943, F. E. Wilson; 1 ♂, Melbourne, Howitt coll. (MVMA); 1 ♂, Clarkfield, 31.x.1942, A. D. Butcher, Ex trout stomach (CV); 1 ♂, E. Vic., Cann Riv., 28.i.196-7, G. Monteith (UQIC).

Haliplus wattsi sp.n.
(Fig. 79–87)

Type-material: ♂ holotype, 'Homehill, Qld, 7.iv.1963, CW.' (CW). Paratypes: 1 ♂ and 1 ♀, on same pin as holotype; 2 ♂, same data as holotype (CW, CV); 1 ♂, Bandenberg, Queensland, 31.iii.1963, CW, *H. testudo* det. C. Watts, 1991; 1 ♂, 25 km. N. Coen, Queensland, 29.ix.1984, C. Watts (CW); 1 ♂, Australia, N. Q., Koombaloomba, 10.i.1962, E. B. Britton, B.M. 1962–153, At light (BMNH); 1 ♂, Nov. Holl.d., Rockkompt [?], Daniel (MNHN); 1 ♀, unlabelled, T12706; 1 ♂, Tambourine Mountain, Jan. 1898, C.J. Wild, *Haliplus alastairi* ms.nom. det C. Watts, T12707 (QMBA); 1 ♀, S.E. Qld, Atkinson's Lagoon, 13 km N.W. Lowood, 10.ix.1978. J. King, *Haliplus testudo* Clark det. C. Watts 1987; 1 ♂, 1 ♀, N. Qld, Mc Ivor River, 40 ml. N. of Cooktown, 7.v.1970, G. B. Monteith, *Haliplus testudo* Clark, det. C. Watts 1987 (UQIC); 1 ♀, N. Qld, Iron Range, Cape York Pen., 28.iv–1.v.1968, G. B. Monteith, *Haliplus testudo* Clark, det C. Watts 1987 (CV); 1 ♀, N. Qld, Homestead, Silver Plains, Via Coen, 11.xii.1964, G. B. Monteith, *Haliplus testudo* Clark Det. C. Watts 1987 (UQIC); 1 ♂, 2 ♀, N. W.A., Kununurra, 22.xii.1991–6.i.1992, R. I. Storey; 1 ♂, 4 ♀, N. Qld, 10 km S. of Laura, 4.iii.1992, at light, J. Hasenpusch; 1 ♀, N. Qld, Tolga, 27.i.1987, J.D. Brown, light trap, *Haliplus testudo* Clark, det. C. Watts 1987; 1 ♂, Qld, 21 km S. Mareeba, 22.i.1991, R. I. Storey; 1 ♂, N. Qld, Cow Bay, N. of Daintree, 25.i–7.ii.1984, I.C. Cunningham, *H.testudo* C. Watts det. 1987; 1 ♂, N. Qld, 7 km NE of Tolga, Feb. 1988, Storey & De Faveri, light trap, *Haliplus testudo* Clark det. C. Watts 1988; 1 ♂, N. Qld, 7 km NE of Tolga, MAR. 1987, Storey & De Faveri, light trap, *H.testudo* Clark det C. Watts 1987; 2 ♂, 2 ♀, N.T., 6 km E. Humpty Doo, 9.ii–4.iii.1987, R. I. Storey (QPI); 1 ♂, Papua, Loloki, c. 10 m. N. of Pt. Moresby, 19.iii.1965, Stn No. 205, M. E. Bacchus, B.M. 1965–120 (BMNH); 1 ♀, Cardstone, Qld, 17–23.ii.1966, K. Hyde, *Haliplus testudo* Clk det. C. Watts; 1 ♀, S. of Charleville, Q., 9.v.1973, M.S. Upton, *Haliplus testudo* Clk det. C. Watts; 1 ♂, Katharine N.T., at light, 9.ii.1968, J. A. L. Watson, *Haliplus testudo* Clk det. C. Watts; 1 ♂, Coastal Plain Rsch. Station, C.S.I.R.O. nr Darwin, N.T., at light, ix.1966, E. C. B. Langfield (ANIC); 1 ♂, Cahills Crossing, N.T., East Alligator River, 12.26S, 132.58E, 2.v.1973, E.G. Matthews, at light, *Haliplus ?australis* Clark, det T. A. Weir, 1980, *Haliplus testudo* Clk det. C. Watts; 1 ♂, N.T., 6 km E. Humpty Doo, 9.ii–4.iii.1987, R. I. Storey; 1 ♀, N. Qld, 7 km NE of Tolga, Feb. 1988, Storey & De Faveri, light trap, *Haliplus testudo* Clark det. C. Watts 1988; 1 ♂, N. Qld, 10 km S. of Laura, 4.iii.1992, at light, J. Hasenpusch; 1 ♂, N. W.A., Kununurra, 22.xii.1991–6.i.1992, R. I. Storey (CV); 1 ♀, Queensland, 160 km S. of Cooktown, 500 m, 28.i.1964, J. Sedlacek (BPBM); 1 ♂, 1 ♀, Qld, Port Douglas, 8.i.1991, D. Larson; 2 ♂, Qld, 5 km S. of Mareeba, 15.i.1991, Larson (MUNC).

Diagnosis

This species can easily be distinguished from



FIGURES 79–87. *Haliplus wattsi*, Holotype ♂: **79**, dorsal view; **80**, antenna; **81**, punctures near elytral base and suture; **82**, hind tibia; **83**, prosternal and metasternal process; **84**, prosternal process in lateral view; **85**, left paramere; **86**, penis; **87**, right paramere.

H. australis and *H. testudo* by the proepisternum being strongly and densely or even coarsely punctured. It can also be distinguished from *H. testudo* by the absence of dark stripes on the basal area of the elytra, the prosternal process usually being wider anteriorly than posteriorly, the uncoloured pronotal anterior punctures, the weakly serrate or nearly smooth apical elytral margin and in the male the penis not being gradually curved to the top and the left paramere having a solid, sometimes very small, digitus.

Description

Length 3.4–3.6, width 1.9–2.1 mm. Body oval, widest behind shoulders, strongly tapering behind middle (Fig. 79).

Head: Yellow-red, darkened near antennae, moderately strongly punctured. Antenna yellow to yellow-red, first two segments brown (Fig. 80). Palpi yellow-brown, last segment twice as long as penultimate segment. Distance between eyes 1.3–1.5x width of one eye. Eyes partly covered by pronotum.

Pronotum: Yellow to yellow-red, moderately densely and strongly punctured, base with a few stronger punctures opposite elytral puncture-row 5. Lateral border straight, finely margined, margin not reaching front corner. Base a little impressed opposite elytral puncture-row 3–5.

Elytra: Yellow to yellow-red, suture and puncture-rows darkened in posterior 2/3, sometimes connected by vague marks. Primary puncture-rows dense and moderately strong, 35–40 punctures in row 1, anterior part of first 2 rows weaker, basal 2 or 3 punctures of row 5 usually wide and confluent. Row 9 very dense and impressed in middle. Secondary punctures along suture relatively strong and as dense as primary punctures, sparser but still strong on intervals, except on hardly punctured or unpunctured interval 6+8. All punctures darkened, except some in lateral rows, and with hole in middle. Complete margin not always visible from above, anteriorly serrate, posteriorly weakly serrate or sinuate.

Underside: Yellow-red to yellow-brown, some darkening near prosternal and metasternal process. Elytral epipleura yellow, almost reaching last sternite, with strong weakly darkened punctures. Legs yellow-red, femur and coxa brown to dark-brown. Prosternum margined anteriorly, strongly and densely punctured. Proepisternum strongly and densely or even coarsely punctured. Prosternal process slightly to clearly gradually diverging anteriorly, laterally grooved in especially posterior half, anterior edge clearly margined, moderately strongly punctured (Figs 83, 84). Metasternal process flat to slightly elevated in middle, weakly punctured, laterally with a few confluent punctures (Fig. 83). Metacoxal lobes not reaching sternite 5, moderately strongly, near suture weaker punctured. Sternites strongly punctured, last sternite with very short fine ridge on apical point. Setiferous striole on dorsal face of hind tibia about 1/6x length of tibia, longer tibial spur about 3/4x length of first tarsal segment (Fig. 82), claws at most 1/2x length of last tarsal segment.

Male: Pro- and mesotarsomeres 1–3 slightly widened and with sucker hairs on ventral side. Penis and parameres as in Figs 85–87. Left paramere with small solid digitus (Fig. 85). Penis dorsally dilated (Fig. 86).

Biology

Specimens have been found in rivers and are attracted to light.

Distribution (Fig. 161).

Australia: Queensland, Northern Territory, northern part of Western Australia. Papua New Guinea.

Haliplus testudo Clark
(Figs 88–96)

Haliplus testudo Clark, 1862: 400. Lectotype ♀ (designated by Watts, 1988), 'lectotype [white round label with blue margin], type [white round label with red margin], 67–56, *H. testudo* Clark, Australia, Lectotype female, *Haliplus testudo* Clark, 1862, selected by C. Watts 1984'. [2 ♀♀ on card, right one marked as type]. (BMNH)[examined].

Haliplus australis sensu Watts 1985, nec Clark 1862. [Misidentification]

Haliplus nigrolineatus Wehncke 1883: 145. **syn.n.**

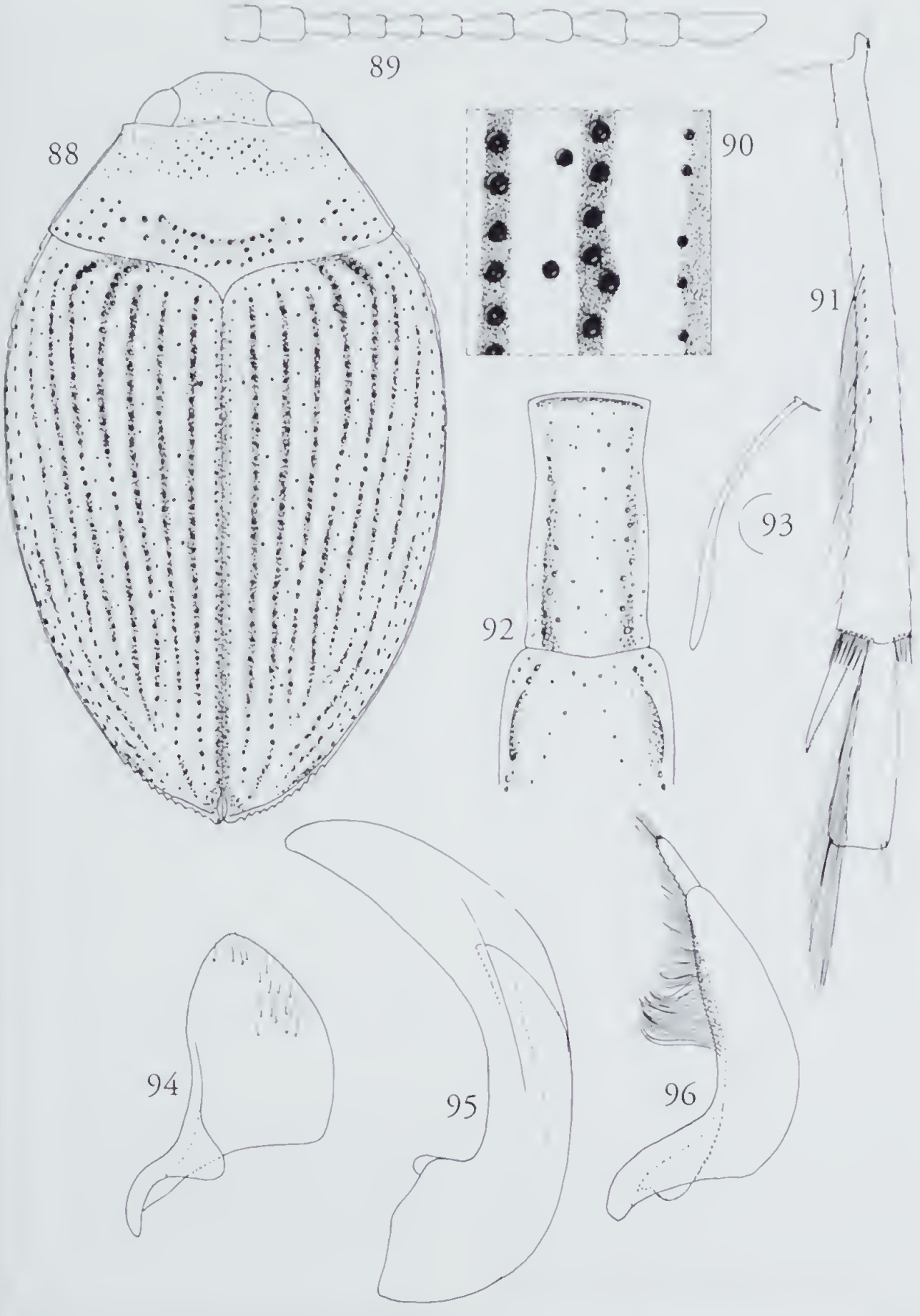
Haliplus testudo; Zimmermann 1920: 316, 1924: 141; Watts 1985: 27, 1988: 23; Lawrence *et al.* 1987: 322.

Haliplus australis; Watts 1985: 27, 1988: 23.

Remarks

Watts (1988) regarded this species as a senior synonym of *H. australis*. I consider the two species to be distinct, because of morphological differences in penis and left paramere (see also remarks under *H. australis*).

In the course of my study of the Neotropical



FIGURES 88–96. *Haliplus testudo*, **88–93**, Lectotype ♀; **94–96**, Sydney: **88**, dorsal view; **89**, antenna; **90**, punctures near elytral base and suture; **91**, hind tibia; **92**, prosternal and metasternal process; **93**, prosternal process in lateral view; **94**, left paramere; **95**, penis; **96**, right paramere.

Haliplidae I examined a syntype of *Haliplus nigrolineatus* Wehncke from Uruguay and concluded that it is conspecific with *H. testudo*. This is obviously a case of mislabelling (further treatment in the revision of the Neotropical Haliplidae)

Diagnosis

This species can be distinguished from *H. australis* by the presence of dark stripes on the basal area of the elytra, the prosternal process usually not being wider anteriorly than posteriorly, the coloured pronotal anterior punctures, the clearly serrate apical elytral margin and in the male the penis being gradually curved to the top and the left paramere not having a solid digitus. It can distinguished from *H. wattsi* by the proepisternum being hardly punctured.

Description

Length 3.5–4.0 mm, width 1.9–2.2 mm. Body oval, widest just in front of middle (Fig. 88).

Head: Yellow to yellow-brown, weakly punctured, on vertex stronger punctured, clypeus not margined anteriorly. Antenna yellow to yellow-brown (Fig. 89). Palpi yellow to brown, last segment 1/3x length of penultimate segment. Distance between eyes 1.5–1.7x width of one eye. Eyes partly covered by pronotum

Pronotum: Yellow-brown, strongly punctured in central anterior area, along base and near lateral margins; transverse area in middle almost unpunctured, most punctures darkened. Lateral borders slightly convex, finely margined. Slight or no impression in front of base.

Elytra: Yellow-brown, black lines on primary puncture-rows continous or sometimes weakly interrupted. Suture darkened, most of base narrowly darkened to puncture-row 5 or 6. Primary punctures moderately strong and dense, about 35 punctures in row 1. Interval 9+10 not much wider than interval 8. Puncture-row 9+10 with separated black punctures except in apical part where short lines may be present. First three or four basal punctures of row 5 confluent. Secondary punctures moderately strong, sometimes as strong as primary ones, sutural row continuous with about 40–45 punctures, 7–10 punctures in interval 2, about 16 in interval 3, interval 4 with only about 4 punctures near base; interval 5,7+9 with sparse row, interval 6,8+10 at most with some punctures in basal area. Completely margined. Shoulders weakly serrate, apical part with about 14 short teeth.

Under side: Yellow-red to yellow-brown, legs yellow-brown to brown, darkened near coxae. Elytral epipleura yellow, reaching to sternite 7. Prosternum margined anteriorly, sparsely punctured. Prosternal process parallel, hardly narrowed near coxae, on both sides with strong groove over almost its total length formed by strong punctures, anterior margin with clear ridge, elsewhere weakly and very sparsely punctured (Figs 92, 93). Metasternal process flat, on both sides an almost continous groove formed by strong punctures, elsewhere weakly and sparsely punctured (Fig. 92). Metacoxal lobes strongly and not very densely punctured, near suture weaker punctured. Setiferous striole on dorsal face of hind tibia weak, about 1/5x length of tibia, longer tibial spur 1/2–2/3x length of first tarsal segment (Fig. 91).

Male: Pro- and mesotarsomeres 1–3 widened and with sucker hairs on ventral side. Penis and parameres as in Figs 94–96. Left paramere without solid digitus (Fig. 94).

Biology

This species is found in rivers and in lentic fresh water and is attracted to light.

Distribution (Fig. 160)

Australia: South Australia, Victoria, New South Wales, Queensland, Northern Territory. The specimen I have seen from Sumatra is obviously mislabelled.

Material examined: South Australia: 1 ♂, 1 ♀ (ANIC); 2 ♂, 5.ii.1908, C. French (MVMA); Victoria: 3 ex., Melbourne (ANIC); 1 ♀, Vic., Yarra Riv., Mellgrove, 4.i.1952, F. E. Wilson; 12 ♀, Vic., Jamieson, 20.iv.1943, F. E. Wilson; 1 ♂, 1 ♀, Victoria, Melbourne; 1 ♀, Victoria, Howitt Coll. (MVMA); 5 ♂, 2 ♀, Vic., Moorobool R., iv.1932 & iv.1951, F. E. Wilson (6 in MVMA, 1 in CV); New South Wales: 2 ♂, Surr. Sydney, N.S.W., Nikitin 1958 (ISNB); 1 ♀, N.S.W., Hornsby, 22.vii.1931, Harvard Exp. Darlington (MCZC); Queensland: Lectotype ♀; paralectotype ♀ (on same card as lectotype) (BMNH); 1 ♀, Caloundra, 21.iii.1963, C. Watts (CW); 2 ex. Nov. Holl.d, Cape York (MNHN); 1 ♀, Queensland, Biggenden, 22.i.1975. H. & A. Howden (CNCI); 2 ♀, Queensland (MVMA); 1 ♀, N. Qld, 11 km WSW of Petford, 3/4.iv.1988, R. I. Storey, at light; (QPI); 2 ♂, N. Qld, 7 km NE of Tolga, ii.1988, R. I. Storey & De Faveri, light trap (QPI, CV); 1 ♀, Queensland, Bundaberg, 31.iii.1963, C.Watts; 1 ♂, Queensland, Gin Gin, 2.iv.1963, C.Watts (CW); 1 ♀, Q., Brisbane, N. Pine R., 6.iii.1932, Harvard Exp. Darlington (MCZC); 1 ♂, Ashgrove, 2.v.1931, H. Hacker; 1 ♂, 1 ♀, N. Pine R., 10.iv.1933, H. Hacker; 2 ♂.

Brisbane, x.1892, C. Wild (QMBA); 1 ♂, N. Qld, Split Rock, 14 km S. of Laura, 23/26.vi.1975, C. Monteith (CV); 1 ♂, Brisbane (QMBA); 1 ♀, Q., Highvale, 8.ix.1965, B. Cantrell (UQIC); 1 ♂, Qld, Brisbane, 2.viii.1964, B. Cantrell (UQIC); 3 ex., Catherine Cr. nr Collins Weir, 20.ii.1990; 22 ex., nr Mt Mulligan, 31.i.1991, Larson & Halfpap (MUNC); Northern Territory: 1 ♂, Goose Lagoon, 16.10S, 136.1E, 11 km SW by S of Borroloola, 17.iv.1976, at light, J. E. Feehan (ANIC); 1 ♀, N.T., Horn Islet, Pellew Group, 25/31.i.1968, B. Cantrell (UQIC); Federal state unknown: 1 ex. (ANIC); 1 ex. without data; 1 ex. Nov. Holl. ex Museo Thorey (MNHN); 1 ♂, 1 ♀, Australia, coll. Wager (ISNB); 7 ♂, 5 ♀, Howitt coll.; 1 ♂, 1 ♀, unlabelled; 1 ♂, C. G. Oke (MVMA); 1 ♀, unlabelled (QMBA). — Indonesia: 1 ♀, Fort de Kock, Sumatra, 920 m., 1925, E. Jacobsen, *Haliplus pulchellus* det. A. Zimmermann [obviously mislabelled](ISNB). — Uruguay: 1 ♂, Montevideo, syntype *Haliplus nigrolineatus* Wehncke [obviously mislabelled](MNHN).

Haliplus signatipennis Régimbart
(Figs 97–111)

Haliplus signatipennis Régimbart, 1891: 979, Lectotype ♀ (here designated), '♀; N.Guinea mer., Rigo, luglio 1889, L.Loria; *signatipennis* Rég.; Museo Civ. Genova; Museum Paris, coll. Maurice Régimbart 1908' (MNHN) [examined].

Haliplus signatipennis; Régimbart 1899: 187; Zimmermann 1920: 316; 1924: 141; Watts 1988: 23.

Diagnosis

This species can be distinguished from other species in the region by the longitudinal dark mark on the pronotum.

Remarks

The specimen collected on Seram (Figs 106–111) is differing from the typical form in the secondary puncture-rows being almost as strong and dense as primary puncture-rows. As this only known specimen from Seram is a female it is not clear if it represents a separate species.

Description

Length 3.4–3.7 mm, width 1.9–2.1 mm. Body oval, parallel behind sligthly protruding shoulders (Fig. 97).

Head: Red-brown to brown, darkened near antennae. Weakly punctured. Antenna yellow-brown to yellow towards end, first five segments not longer than wide (Fig. 98). Palpi yellow-brown, last segment very short, about 1/4x penultimate segment. Distance between eyes 1.1–1.2x width of one eye.

Pronotum: Yellow-brown, large dark longitudinal mark in middle. Impressed basally, opposite elytral puncture-row 5–7 with strong, posteriorly well bordered impression. Moderately strongly and densely punctured, near hind corners a few widened punctures. Laterally not margined.

Elytra: Yellow-brown, very extensive dark maculation along base, suture and on intervals. Completely margined, no clear serration. Interval 2 slightly impressed. Primary puncture-rows moderately strong, about 32 punctures in row 1, row 4–7 stronger than adjacent rows. Secondary punctures along suture dense and moderately strong (Fig. 99), secondary puncture-rows on all intervals, on interval 9 behind central dark mark very dense row of secondary punctures. All punctures darkened and with hole in middle.

Underside: Red-brown to dark brown. Elytral epipleura yellow-brown, reaching to sternite 6. Legs yellow-brown (tarsus) to dark brown (femur). Prosternal process sinuate in anterior part and close to apex, anterior edge margined, laterally with clean grooves, in anterior third part moderately strongly punctured, in posterior 2/3 weakly punctured (Figs 101, 102). Metasternal process flat with lateral impressions, weakly punctured (Fig. 101). Metacoxal lobes not reaching sternite 5, moderately strongly, near suture weaker punctured. Sternite 5+6 with dense irregular puncture-rows, last sternite moderately strongly punctured, apical point with short ridge.

Setiferous striole on dorsal face of hind tibia about 1/5x length of tibia, longer tibial spur about 4/5x length of first tarsal segment (Fig. 100).

Male: Pro- and mesotarsomeres 1–3 widened and with sucker hairs on ventral side. Penis and parameres as in Figs 103–105.

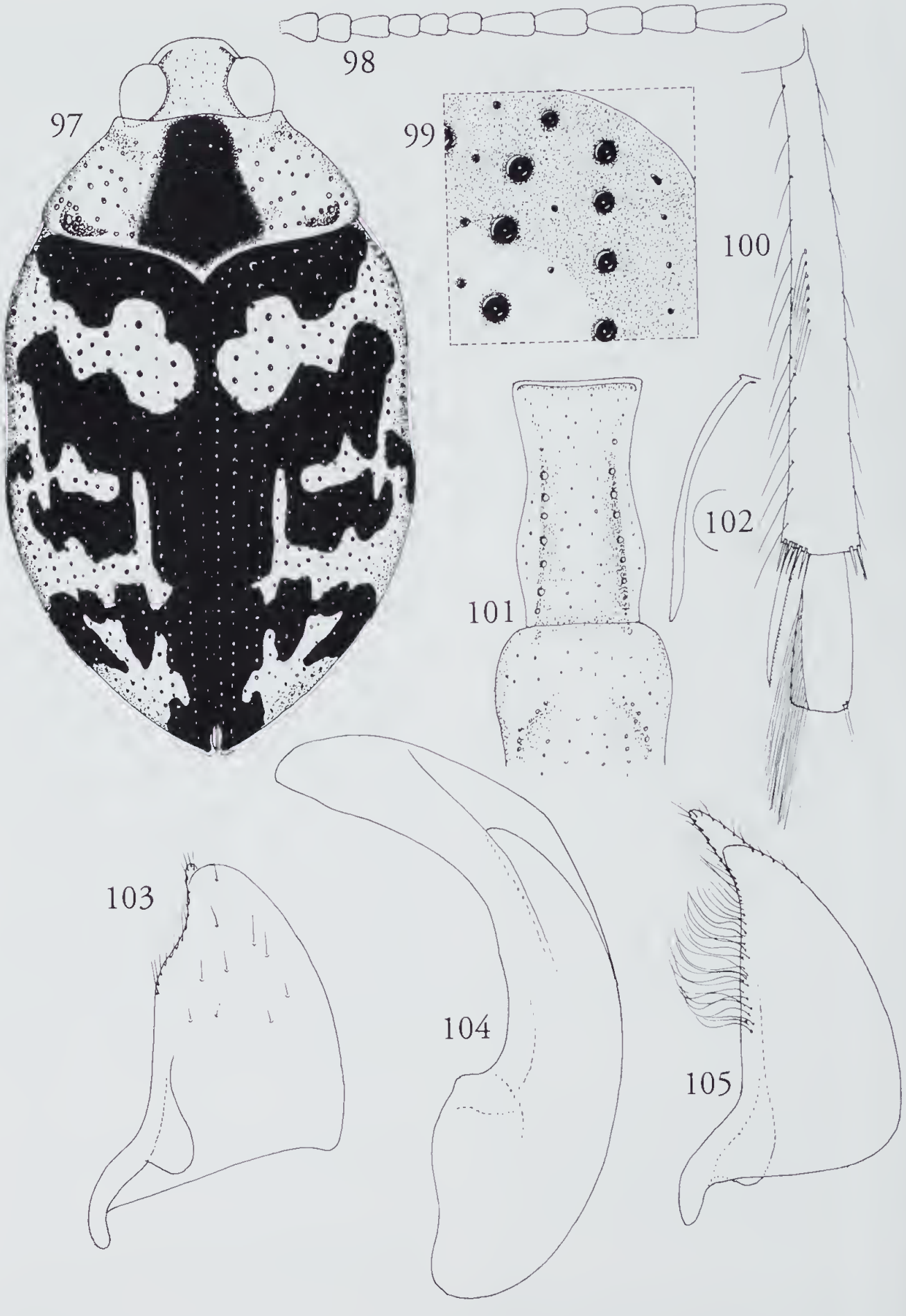
Biology

Specimens are collected in a stock pond, in a Sago swamp and in bomb craters.

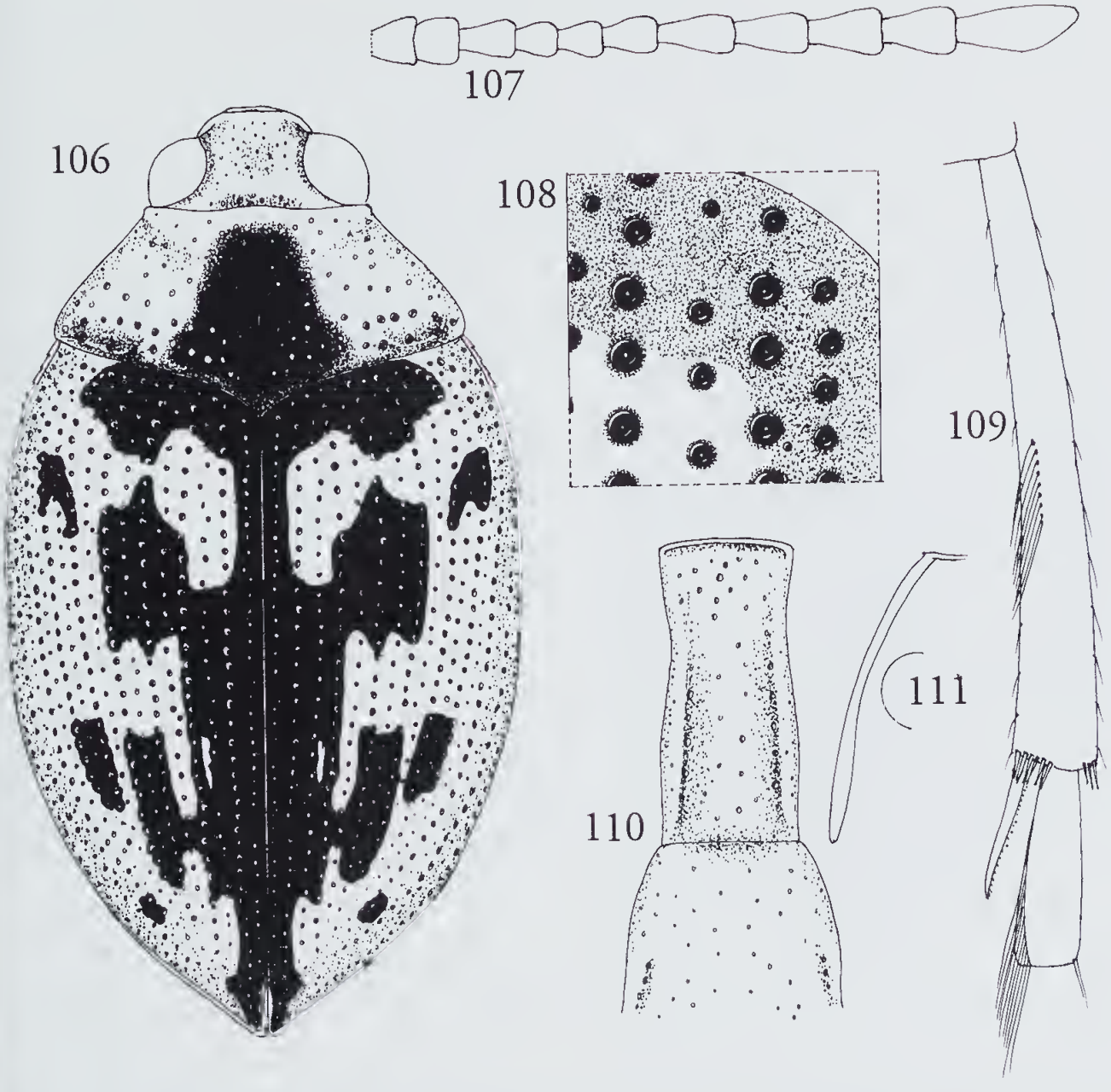
Distribution (Fig. 162)

Papua New Guinea, Indonesia: Seram.

Material examined: Papua New Guinea: Lectotype ♀ (MNHN); 3 ♂, 1 ♀, Madang, 5 km N. Alexishafen, sago swamp, 9.iii.1991; 1 ♂, Madang, 2 km W. Alexishafen, bomb craters, 1.iv.1991; 2 ♂, Ramu Vlly, Brahman Mission,



FIGURES 97–105. *Haliplus signatipennis*, **97–102**, Lectotype ♀; **103–105**, ♂ from Ramu Vlly: **97**, dorsal view; **98**, antenna; **99**, punctures near elytral base and suture; **100**, hind tibia; **101**, prosternal and metasternal process; **102**, prosternal process in lateral view; **103**, left paramere; **104**, penis; **105**, right paramere.



FIGURES 106–111. *Haliplus signatipennis*, ♀ from Seram: **106**, dorsal view; **107**, antenna; **108**, punctures near elytral base and suture; **109**, hind tibia; **110**, prosternal and metasternal process; **111**, prosternal process in lateral view.

stock pond, 17.iv.1991, Larson; 1 ♂, 1 ♀, Madang, Brahman Mission, 21 & 27.vi.1991, D. & M. Larson (MUNC). Indonesia: 1 ♀, Seram nr Wahai, leg. Jäch 1989 (NHMV).

Haliplus ferruginipes Régimbart
(Figs 112–117)

Haliplus ferruginipes Régimbart, 1891: 979. The type material (Papua New Guinea, Rigo) could not be found in Genoa (MCSN), where it should be, nor in Paris (MNHN).

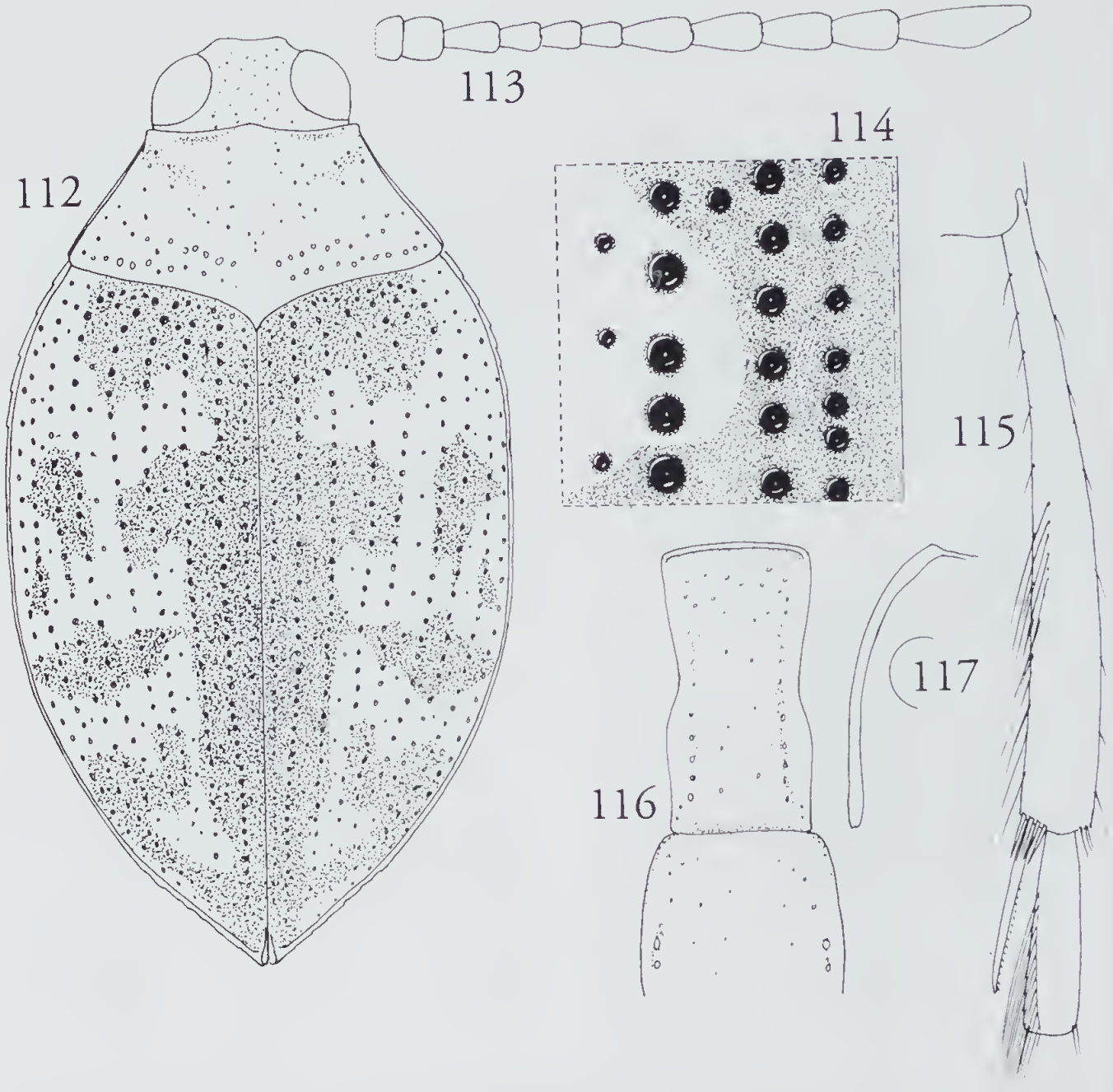
Haliplus nicholasi Watts, 1988: 23. Holotype ♀, 'Townsville, Qld Feb. 1972, T. Ingeldew, T–10793' (MVMA) [examined] **syn. n.**

Haliplus ferruginipes; Zimmermann 1920: 305; 1924: 142; Watts 1988: 23.

Remarks

A specimen from Merauke, New Guinea is considered to belong to this species as it matches the description of *H. ferruginipes*, although its length is 3.0 mm opposed to 3 4/5 mm as mentioned in the description. This specimen also resembles very much the types of *H. nicholasi*.

Although both species are only known from females making checking of male aedaegi



FIGURES 112–117. *Haliplus ferruginipes*, Holotype ♀ of *Haliplus nicholasi*: **112**, dorsal view; **113**, antenna; **114**, punctures near elytral base and suture; **115**, hind tibia; **116**, prosternal and metasternal process; **117**, prosternal process in lateral view.

impossible, I consider *H. ferruginipes* and *H. nicholasi* conspecific.

Diagnosis

This species can be distinguished from related species by the widely darkened elytral base in combination with puncture-row 5 not impressed basally.

Description

Length 3.3–3.6 mm, width 1.8–1.9 mm. Body oval, widest in middle (Fig. 112).

Head: Yellow-brown to yellow-red, anteriorly near antennae darkened, moderately strongly punctured. Antenna (Fig. 113) and palpi yellow-red to yellow-brown. Distance between eyes about 1.5x width of one eye.

Pronotum: Yellow-red, strongly punctured, on disc slightly weaker and sparser punctured, base slightly impressed. Lateral borders margined, margins narrowed anteriorly and hardly reaching front corner. Hind corners a little rounded.

Elytra: Yellow-red to yellow-brown, extensive dark confluent maculation along base to puncture-row 6, along suture to at least puncture-row 1 and on intervals. Primary puncture-rows moderately strong and dense, about 30 punctures in row 1, basal punctures of row 5 not in an impression.

Puncture-row 7+8 strong and a little impressed in middle, united to one row long before reaching base. Secondary punctures along suture nearly as strong as primary row 1 (Fig. 114), sparse but strong secondary punctures on interval 2, 3, 5, 7+9; interval 4, 6+8 unpunctured. All punctures darkened and with hole in middle. Completely margined, weakly and sparsely serrate in anterior part and weakly sinuate in apical part.

Underside: Yellow-red to yellow-brown, slightly darkened near prosternal en metasternal process, tarsi and tibia yellow-brown, femora brown. Elytral epipleura yellow with strong uncoloured punctures, reaching to sternite 6. Prosternal process sinuate in middle and just before apex, anteriorly finely margined, lateral puncture-rows in slight impression, in anterior half strongly punctured, in posterior half in middle sparsely punctured (Figs 116, 117). Prosternum anteriorly weakly margined. Metasternal process flat, moderately strongly but sparsely punctured, a few lateral punctures usually in slight impression (Fig. 116). Metacoxal lobes not reaching sternite 5, strongly punctured, near suture weakly punctured. Sternite 5+6 with strong and dense transverse puncture-row. Sternite 7 sparsely punctured, bulbous in lateral view, short clear ridge on apical point. Setiferous striole on dorsal face of hind tibia about 1/5x length of tibia, longer apical spur about 3/4x length of first tarsal segment (Fig. 115).

Male: unknown

Distribution (Fig. 156)

Australia: Northern Territory, northern part of Queensland. Papua New Guinea. Indonesia: West New Guinea.

Material examined: West New Guinea: 1 ♀, S. Neth. New Guinea, Merauke, sea level, 1.iv.1955, L. D. Brongersma (RMNH). Australia: 1 ♀□holotype of *Haliplus nicholasi* Watts (MVMA); 1 paratype ♀ [not ♂ as label suggests], Homehill, Qld, 7.iv.1963, C.W., *Nicholasi* C. Watts 1984; 2 paratypes ♀, Cairns, Qld, 16.iv. 1963, C.W., *nicholasi* C. Watts 1984 (SAMA); 1 ♀, N.T., 6 km E. of Humpty Doo, 9.ii–4.iii.1987, R. I. Storey, *Haliplus nicholasi ms.nom* Det. C. Watts 1987 (QPI).

Haliplus alastairi Watts
(Figs 118–126)

Haliplus alastairi Watts, 1988: 24. Holotype ♂, 12°36'S 132°52'E Magela Creek, N.T. 1 km NNW of Mudginbarry HS. 25.v.1973, Matthews & Upton (ANIC).

Remarks

Part of the material Watts (1988) considered to belong to this species, belongs to a new species, *Haliplus timmsi*, described in this revision.

Diagnosis

This species can be distinguished from the related *H. timmsi* by the flat metasternal process of *H. alastairi* opposed to the metasternal process pitted on both sides of *H. timmsi*.

Description

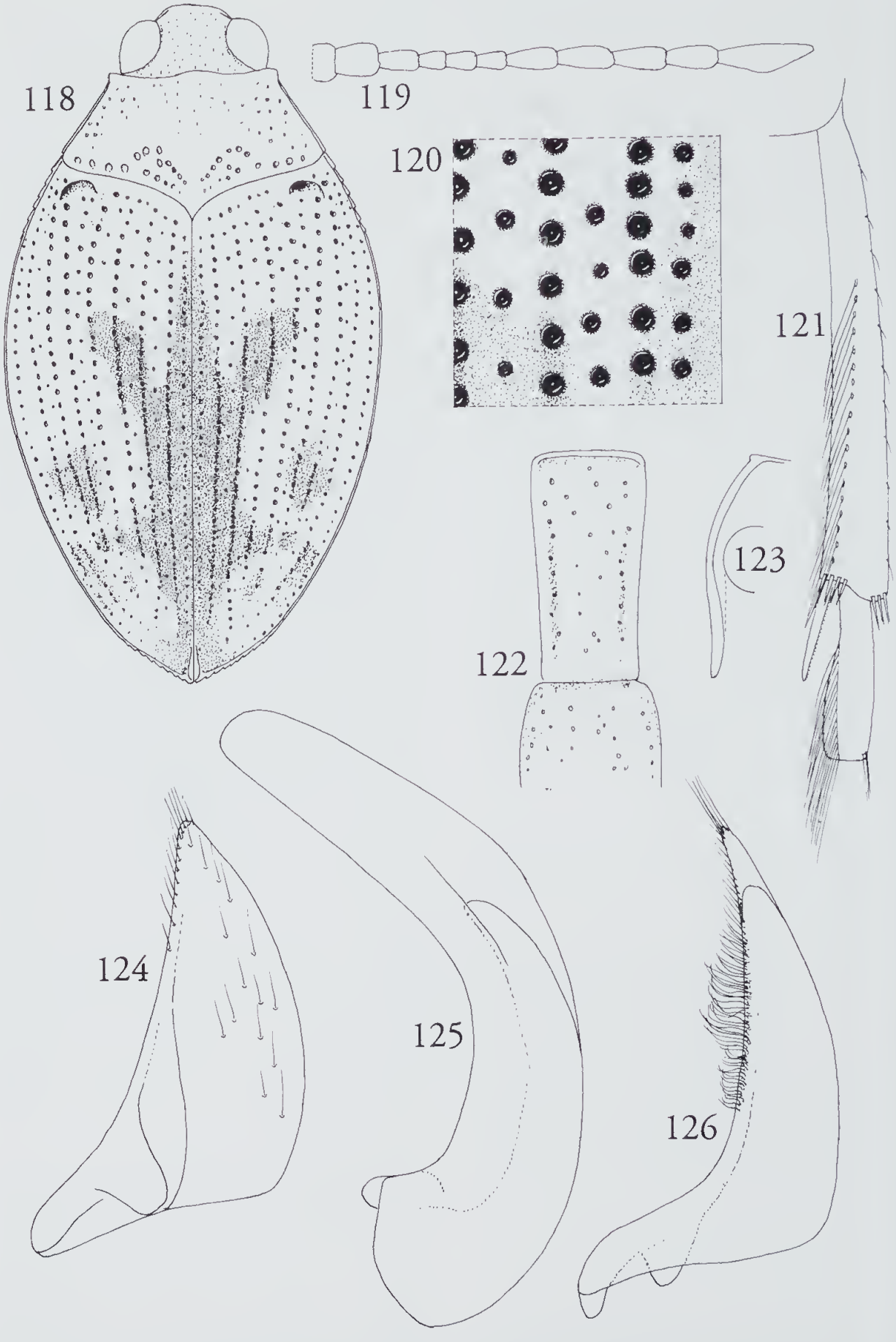
Length 3.0–3.6 mm, width 1.7–2.0 mm. Body oval, widest behind shoulders, clearly tapering in apical 1/3 part (Fig. 118).

Head: Yellow-brown, clypeus and frons weakly punctured, posterior part of vertex moderately strongly punctured. Antenna yellow to yellow-brown, fourth segment shorter than adjacent segments (Fig. 119). Palpi yellow, last segment about 1/2x length of penultimate segment. Distance between eyes 1.4–1.7x width of one eye.

Pronotum: Yellow-brown. Moderately strongly punctured, basal punctures opposite elytral puncture-row 4+5 slightly stronger and lying in transverse impression. Base hardly impressed. Lateral borders weakly margined, margin narrowed anteriorly and not reaching front corner. Anterior edge slightly protruding in middle.

Elytra: Yellow-brown with distinct dark markings. Darkened along most of suture and on parts of intervals, darkening on parts of puncture-rows. Primary puncture-rows moderately strong, first three rows weaker and denser than others, about 42 punctures in row 1. Row 5 abruptly bent outwards and ending in an inwards directed strong transverse impression, row 6 basally strong. Sutural row of secondary punctures about as strong as primary row 1 (Fig. 120). Secondary punctures near basal impression of primary row 5 strong. Sparse row of secondary punctures in interval 2, 3, 5+7. Interval 4, 6+8 with only a few punctures in anterior part. Completely margined, shoulders and apical margin serrate.

Underside: Yellow-brown to dark brown. Elytral epipleura yellow to yellow-brown, reaching to sternite 5. Legs yellow-brown to dark brown. Prosternum anteriorly margined, strongly, but not densely punctured. Prosternal process flat, nearly parallel, slightly narrowed just before apex, slightly diverging anteriorly, anterior edge margined, posteriorly weakly punctured, anteriorly stronger punctured (Figs 122, 123). Metasternal process flat with on each side some strong punctures, elsewhere weakly punctured (Fig. 122).



FIGURES 118–126. *Haliplus alastairi*, Holotype ♂: **118**, dorsal view; **119**, antenna; **120**, punctures near elytral base and suture; **121**, hind tibia; **122**, prosternal and metasternal process; **123**, prosternal process in lateral view; **124**, left paramere; **125**, penis; **126**, right paramere.

Metacoxal lobes not reaching sternite 5, moderately strongly to weakly punctured towards suture. Sternite 5+6 moderately, but especially laterally densely punctured. Sternite 7 fairly weakly punctured. Setiferous striole on dorsal face of hind tibia on posterior 2/3, longer tibial spur half as long as first tarsal segment (Fig. 121).

Male: Pro- and mesotarsomeres 1–3 widened and with sucker hairs on ventral side. Penis and parameres as in Figs 124–126.

Biology

Specimens were attracted to UV light placed in open forest.

Distribution (Fig. 163)

Australia: Northern part of Western Australia, Northern Territory, Queensland.

Material examined: Western Australia: 1 ♀, N. W.A., Kununurra, 22.xii.1991–6.i.1992, R. I. Storey (CV); 1 ♂, CALM-site 13/4, 12 km S. of Kalumburu Mission, 14.25S, 126.38E, 7–11.vi.1988, T. A. Weir, open forest (ANIC); Northern Territory: holotype ♂; 1 ♀ paratype Katherine, 9.ii.1968, at light, J. A. L. Watson (ANIC); 2 ♀, N.T., Grotty Pond, Newry Stn, 8.ii.1986, M. Tyler, M. Davies & G. Watson (SAMA); 1 ♂, Arnhem Land, Maningrida, 5 m., 16.iii.1961, J. L. Gressitt, light trap (BPBM); 2 ♂, 1 ♀, N.T., Horn Islet, Pellew Group, 25/31.i.1968, B. Cantrell (UQIC, CV); 1 ♀, N.T., 6 km E. of Humpty Doo, 9.ii–4.iii.1987, R. I. Storey (QPI); Queensland: 2 ♂ [on label indicated as ♀♀], Cairns, B. Allen (SAMA); 1 ♂, Q., Cairns,. Darlington (MCZC); 1 ♀, N. Qld, Iron range, Cape York Pen., 28.iv–4.v.1968, G. Monteith (UQIC); 1 ex., Cairns, C. J. W., PARATYPE *Haliplus alastairi* Watts 1984, T.11164 (QMBA); 1 ♂, N. Qld, Weipa, 15/16.iii.1989, G. Dickinson, at UV light (CV); 2 ♀, N. Qld, 10 km S. of Laura, 4.iii.1982, at light, J. Hasenpusch (QPI); 1 ♂, 1 ♀, Cardstone, 4–16.i.1968, K. Hyde, paratype; 1 ♀, Cook Town, N.Q., i.1971, G.B., paratype; 1 ♀, King River, 14.30S, 143.20E, 22.vi.1968, F. Parker, paratype (ANIC); 1 ♂, Qld, nr Mt Mulligan, 31.i.1991, Larson & Halfpap (MUNC); Federal state unknown: 1 ♂, Australia or Tasmania, Ploson [?], Mackay (MNHN).

Haliplus timmsi sp.n.

(Figs 127–135)

Type material: Holotype ♂, Lake Buchanan, Qld, 21.30S/45.50E, B. Timms, 25.ix.1953, PARATYPE *Haliplus alastairi* C. Watts 1984 (SAMA). Paratypes: 4 ♀, N. T., Grotty Pond, Newry Stn, 8.ii.1986, M. Tyler, M. Davies & G. Watson, *Haliplus alastairi* sp.nov. det. C. Watts '86 (SAMA); 1 ♂, 1 ♀, N. Qld, Pinnarendi Stn 60 km W. of Mt Garnet, 7.ii.1989, D. Heiner (QPI, CV); 1 ♂, 2 ♀, N. Qld, 10 km S. of Laura, 4.iii.1992, at light, J. Hasenpusch (2 in QPI, 1 in CV); 3 ♂, 9 ♀, N. Qld 7km NE of Tolga, ii.1988, Storey & De Faveri, light trap (12 in QPI, 1 in CV); 1 ♀, N. Qld, 7 km NE of Tolga, iii.1987, Storey & De Faveri, light trap (QPI); 1 ♂, 1 ♀, 11 km WSW of Petford, 3/4.iv.1988, R. I.Storey, at light (QPI, CV); 1 ♂, Katharine, N.T., at light, 9.ii.1968, J. A. L. Watson, *Haliplus* sp.nov. det. T. A. Weir, paratype *Haliplus alastairi* C. Watts 1984 (ANIC); 1 ♂, 2 ♀, Edge Hill, N.Q., ii.1954, G.B. (2 in ANIC, 1 in CV).

Remarks

Some paratypes of *Haliplus alastairi* Watts belong to this new species.

Diagnosis

This species can be distinguished from the related *H. alastairi* by the metasternal process being impressed on both sides.

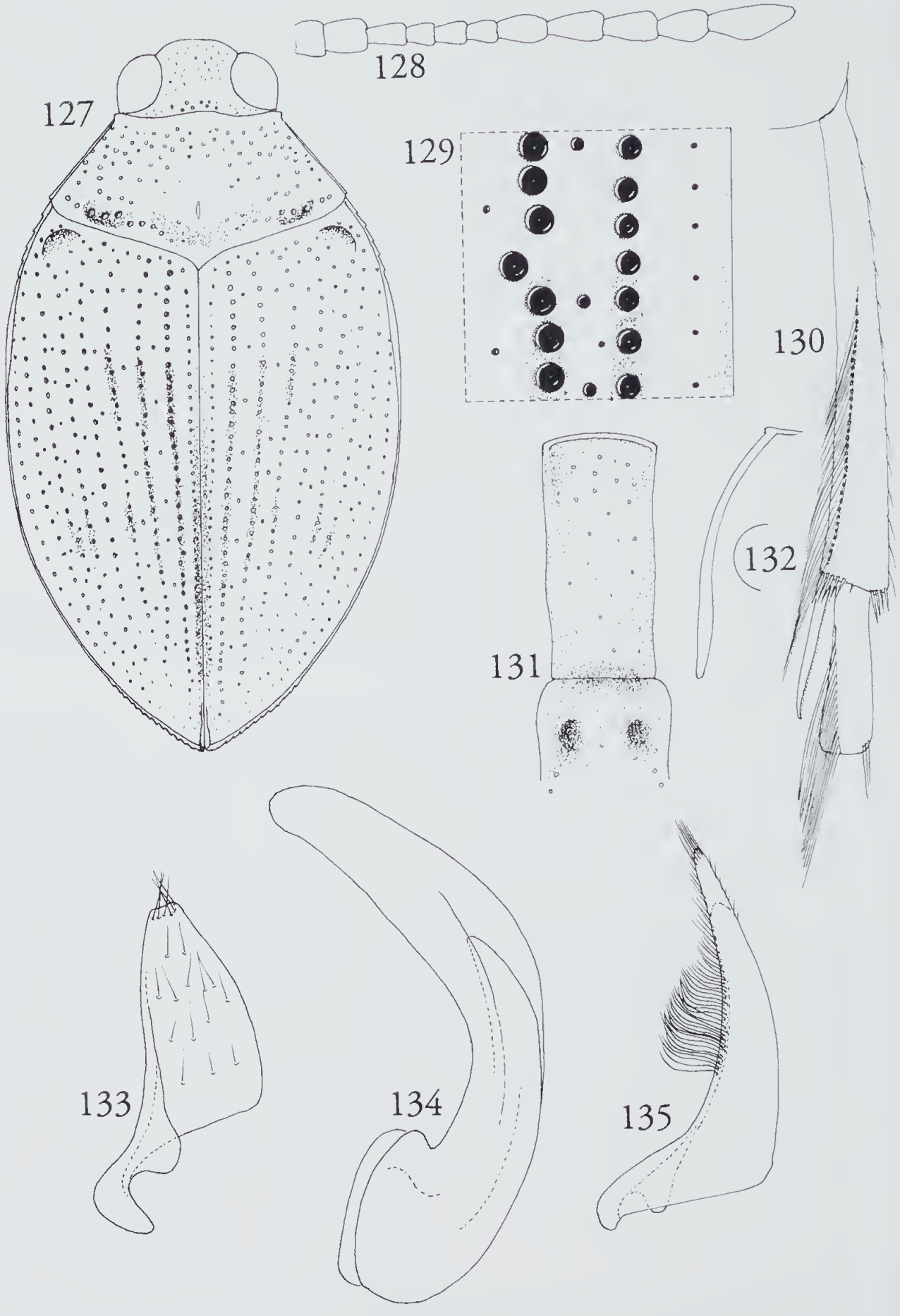
Description

Length 3.0–3.6 mm, width 1.7–2.0 mm. Body oval, widest behind shoulders, clearly tapering in apical 1/3 part (Fig. 127).

Head: Yellow-brown, clypeus and frons weakly punctured, posterior part of vertex moderately strongly punctured. Antenna yellow to yellow-brown, fourth segment shorter than adjacent segments (Fig. 128). Palpi yellow, last segment about 1/2x length of penultimate segment. Distance between eyes 1.5–2.0x width of one eye.

Pronotum: Yellow-brown. Moderately strongly punctured, basal punctures opposite elytral puncture-row 4+5 slightly stronger, base with clear impression. Lateral borders weakly margined, margin narrowed anteriorly and not reaching front corner. Anterior edge slightly protruding in middle.

Elytra: Yellow-brown. Darkened along most of suture, darkening on parts of puncture-rows, or rarely with marks connecting puncture-rows. Primary puncture-rows moderately strong, first three rows weaker and denser than others, about 42 punctures in row 1. Row 5 abruptly bent outwards and ending in an inwards directed strong transverse impression. Row 6 basally weak. Sutural row of secondary punctures weak. Sparse row of secondary punctures in interval 2, 3, 5+7.



FIGURES 127–135. *Haliplus timmsi*, Holotype ♂: **127**, dorsal view; **128**, antenna; **129**, punctures near elytral base and suture; **130**, hind tibia; **131**, prosternal and metasternal process; **132**, prosternal process in lateral view; **133**, left paramere; **134**, penis; **135**, right paramere.

Interval 4, 6+8 with only a few punctures in anterior part. Secondary punctures near basal impression of row 5 weak. Completely margined, shoulders and apical margin serrate.

Underside: Yellow-brown to dark brown. Elytral epipleura yellow to yellow-brown, reaching to sternite 5. Legs yellow-brown to dark brown. Prosternum anteriorly margined, strongly, but not densely punctured. Prosternal process flat, nearly parallel, slightly narrowed just before apex, slightly diverging anteriorly, anterior edge margined, posteriorly weakly punctured, anteriorly stronger punctured (Figs 131, 132). Metasternal process flat with on each side small very deep impression, weakly punctured (Fig. 131). Metacoxal lobes not reaching sternite 5, moderately strongly to weakly punctured towards suture. Sternite 5+6 moderately, but especially laterally densely punctured. Sternite 7 fairly weakly punctured. Setiferous striole on dorsal face of hind tibia on posterior 2/3, longer tibial spur almost as long as first tarsal segment (Fig. 130).

Male: Pro- and mesotarsomeres 1–3 widened and with sucker hairs on ventral side. Penis and parameres as in Figs 133–135.

Biology

Specimens were attracted to light.

Distribution (Fig. 164)

Australia: Queensland, Northern Territory.

Haliplus stepheni Watts
(Figs 136–146)

Haliplus stepheni Watts, 1988: 25. Holotype ♀, Australia, N.T., Humpty Doo, 6 km E., 9.ii–4.iii.1987, R. I. Storey (SAMA)[examined].

Diagnosis

This species can be distinguished from related species by the combination of a darkened elytral base and elytral puncture-row 5 with a strong transverse impression on base.

Description

Length 2.8–3.0 mm, width 1.5–1.6 mm. Body long oval, widest in middle (Fig. 136).

Head: Yellow, weakly punctured. Antenna (Fig. 137) and palpi yellow. Last segment of maxillair palpus about half length of penultimate segment (Fig. 139). Last segment of labial palpus about 2/3x length of penultimate segment (Fig. 140). Distance between eyes 1.5–1.6x width of one eye.

Pronotum: Yellow to yellow-red, usually dark blotch on anterior central part. Moderately strongly punctured, basally opposite elytral puncture-row 4 transverse impression, surrounded by strong punctures, lateral borders slightly concave, margined except near front corner, margin stronger posteriorly.

Elytra: Yellow to yellow-red, distinct dark maculation consisting of: black suture reaching secondary row 1 or in apical part reaching to primary row 1, black band along base to puncture-row 5, marks confluent with suture on disc and in posterior part, large marks in anterior, in central and in posterior part. Primary punctures strong and with clear central hole, about 28 punctures in row 1, basal punctures of row 5 in strong impression. Punctures in row 1+2 less strong than in row 3–6 or 7. Secondary punctures usually strong, generally restricted to odd intervals. All punctures darkened. Lateral sides margined, slightly constricted in posterior part, serrate in anterior part (about 7 teeth) and in posterior part (about 7 teeth).

Underside: Yellow to yellow-brown, legs yellow to brown towards coxae. Elytral epipleura yellow, reaching sternite 6, in anterior part with strong darkened punctures. Prosternum margined anteriorly, strongly punctured. Prosternal process about parallel-sided, sligthly narrowed near coxae, grooved along both sides, strongly and densely punctured, clearly margined anteriorly (Fig. 142, 143). Metasternal process flat or slightly elevated in middle, grooved along both sides, weakly punctured (Fig. 142). Metacoxal lobes moderately strongly, near suture weaker punctured, not reaching posterior margin of sternite 4. Sternite 5+6 posteriorly with complete puncture-row, sternite 7 with a few punctures in apical part. Setiferous striole on dorsal face of hind tibia about 1/3x tibia-length, longer tibial spur 2/3x length of first tarsal segment (Fig. 141).

Male: Pro- and mesotarsomeres 1–3 widened and with sucker hairs on ventral side. Penis and parameres as in Figs 144–146.

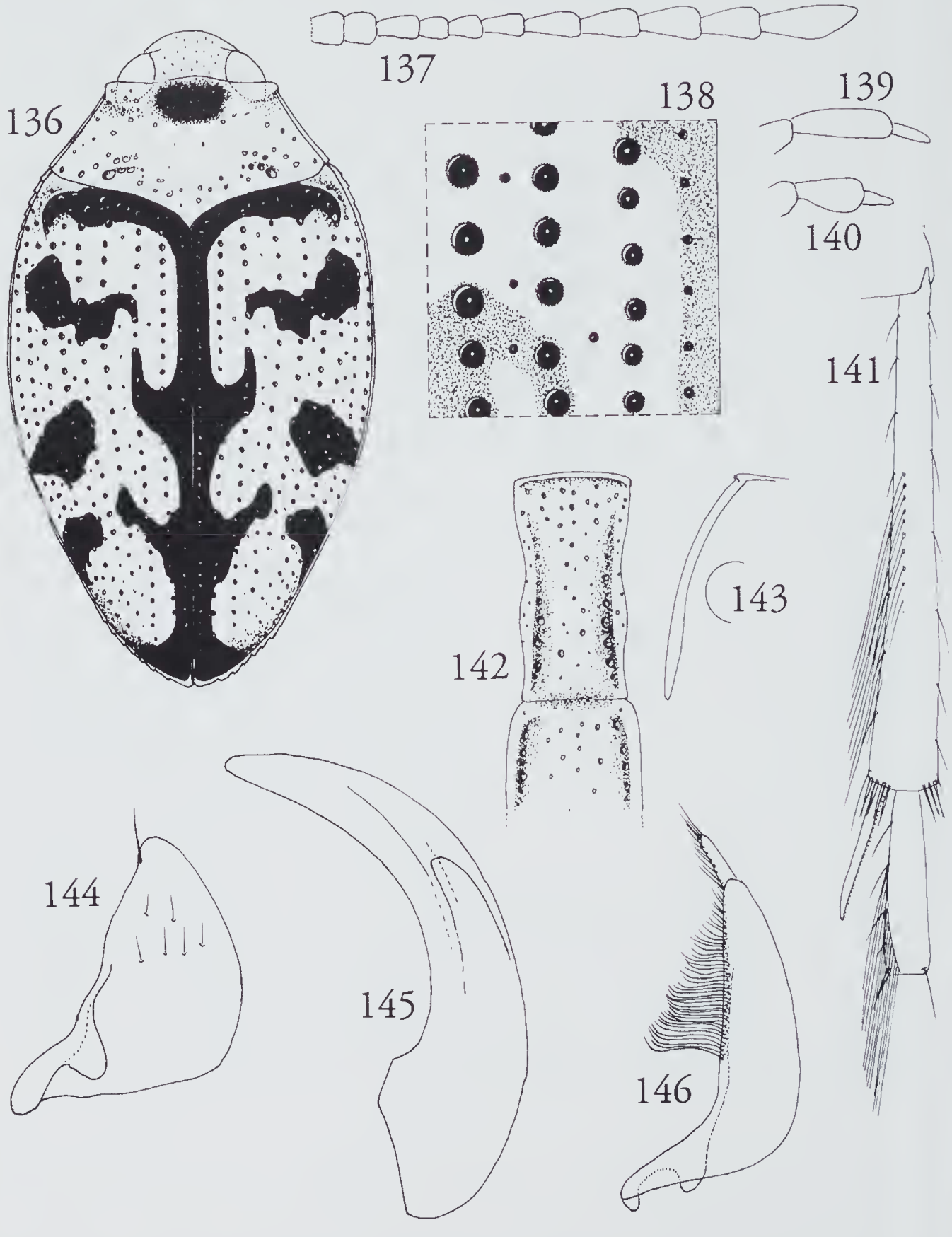
Biology

Specimens were collected in a creek and were attracted to light.

Distribution (Fig. 162)

Australia: Western Australia, Northern Territory, Queensland.

Material examined: Western Australia: 1 ♂, N. W.A., Kununurra, 22.xii.1991–6.i.1992, R. I.



FIGURES 136–146. *Haliplus stepheni*, **136-143**, Holotype ♀; **144–146**, Paratype ♂: **136**, dorsal view; **137**, antenna; **138**, punctures near elytral base and suture; **139**, maxillair palpus; **140**, labial palpus; **141**, hind tibia; **142**, prosternal and metasternal process; **143**, prosternal process in lateral view; **144**, left paramere; **145**, penis; **146**, right paramere.

Storey (CV); Northern Territory: Holotype ♀ (SAMA); 8 paratypes with same data as holotype (1 ♂ in CW; 4 ♂, 3 ♀ in QPI); Queensland: 1 ♀, N. Qld, 11 km WSW of Petford, 3/4.iv.1988, R. I. Storey, at light (QPI); 2 ex. Gunshot Ck, 13 km WNW of Heathlands, 11.43S, 142.26E, 18.iii.1992, at light, D. C. F. Rentz (ANIC, CV); 1 ♀, Qld nr Mt Mulligan, 31.i.1991, Larson & Halfpap (MUNC).

Haliplus sindus Watts
(Figs 147–152)

Haliplus sindus Watts, 1988: 22. Holotype ♀, Qld Bentinck Is. 'Ninyilki' 6 June 1963. P. Aitken, N. B. Tindale. (SAMA)[examined].

Diagnosis

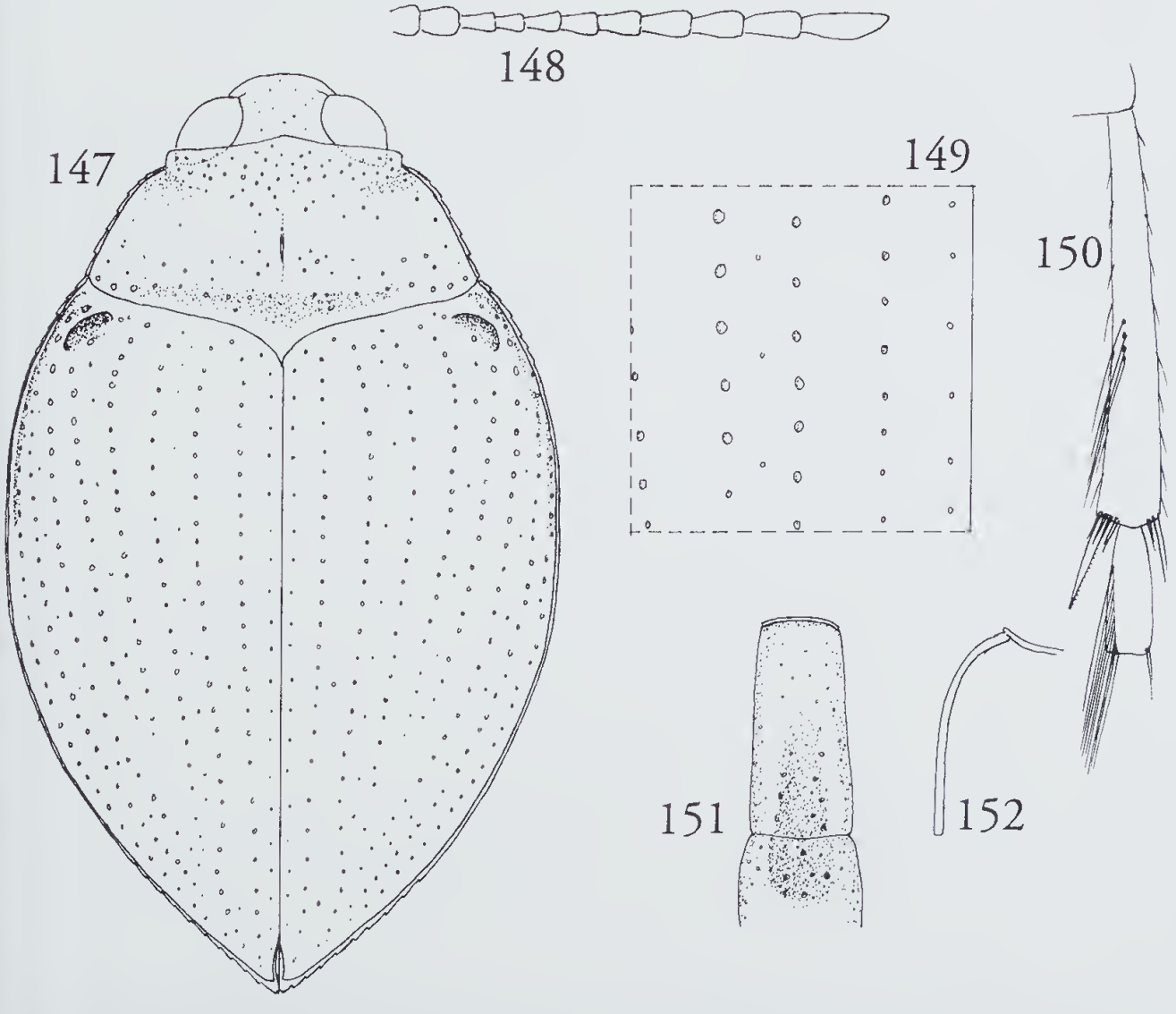
This species is easy to distinguish from others in the region by its small size and the serrate lateral margins of pronotum.

Description

Length 1.7–2.2 mm, width 1.1–1.3 mm. Body oval, strongly tapering posteriorly, widest in front of middle (Fig.147).

Head: Yellow to yellow-red, weakly and sparsely punctured. Antenna (Fig. 148) and palpi yellow. Last segment of maxillair palpi 1/3x length of penultimate segment. Last segment of labial palpi almost as long as penultimate segment. Distance between eyes 1.4–1.5x width of one eye.

Pronotum: Yellow to yellow-red, weakly punctured, in anterior central part more strongly and densely punctured, base impressed. Lateral borders slightly convex, anteriorly bent inwards, lateral margins clearly serrate, not reaching anterior corner (Fig. 147).



FIGURES 147–152. *Haliplus sindus*, Holotype ♀: **147**, dorsal view; **148**, antenna; **149**, punctures near elytral base and suture; **150**, hind tibia; **151**, prosternal and metasternal process; **152**, prosternal process in lateral view.

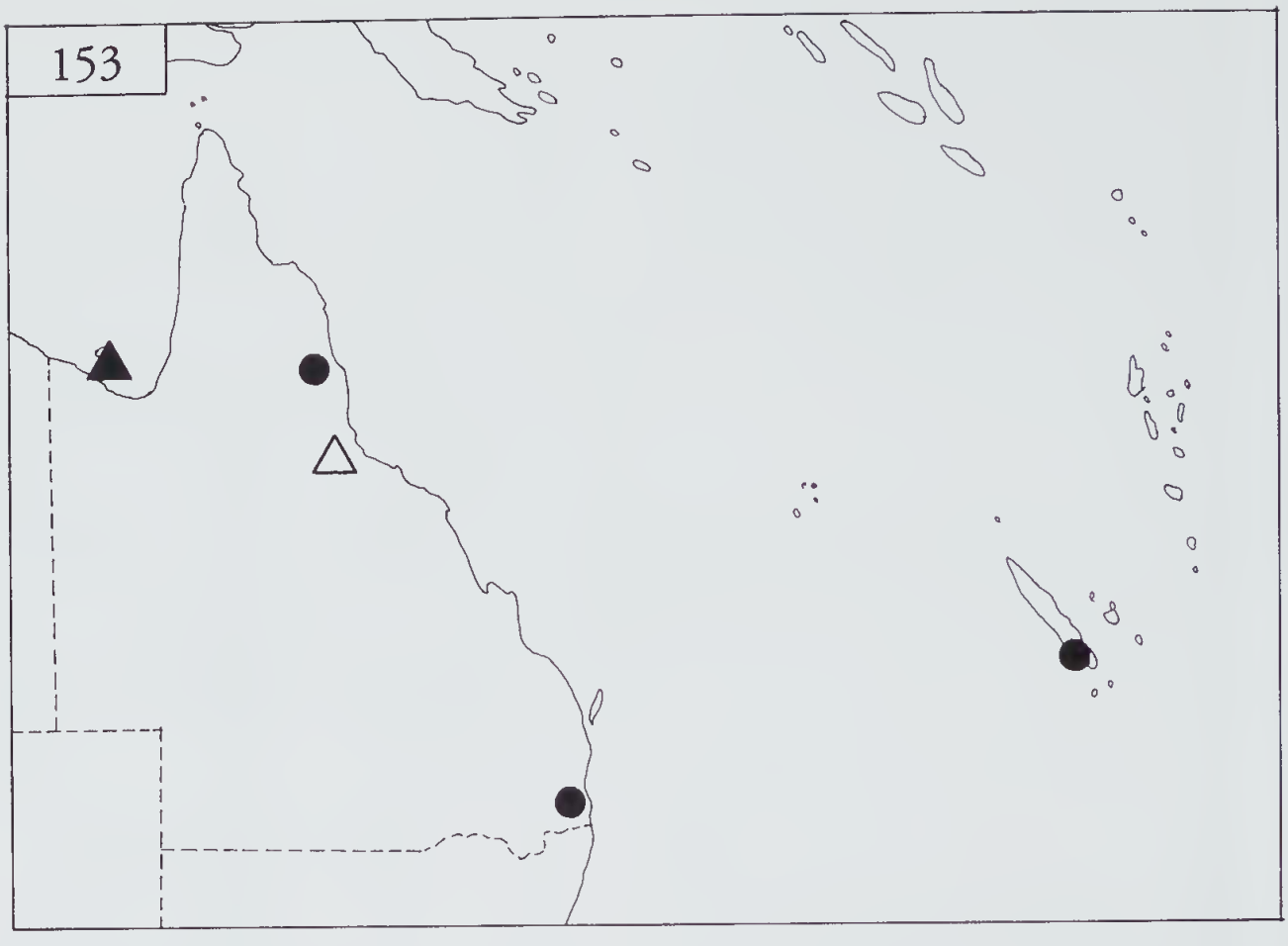


FIGURE 153. Distribution of *Haliplus oberthuri* (dots) and *Haliplus sindus* (triangle, black: examined; open: unexamined paratype).

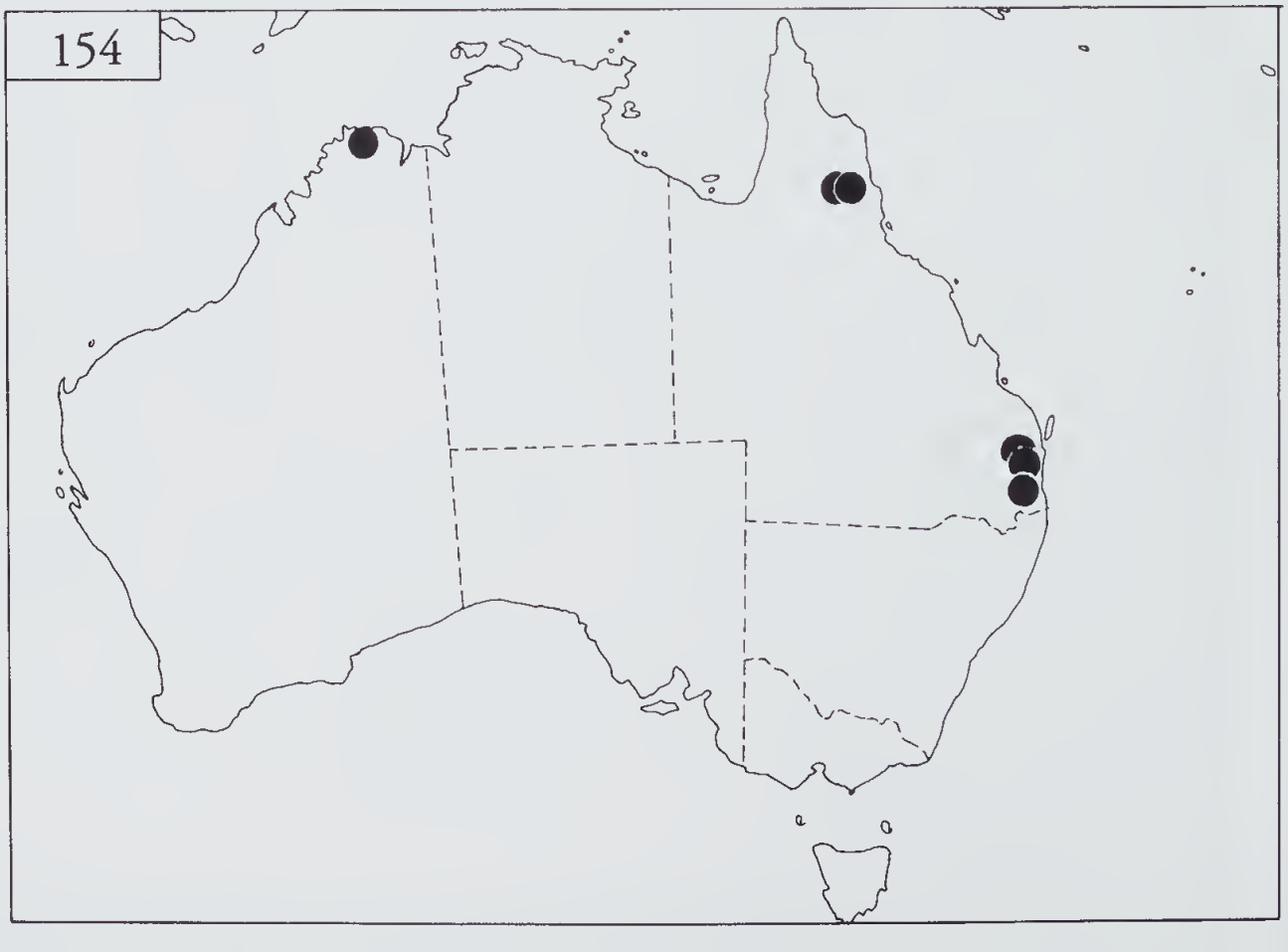


FIGURE 154. Distribution of *Haliplus bistriatus*.

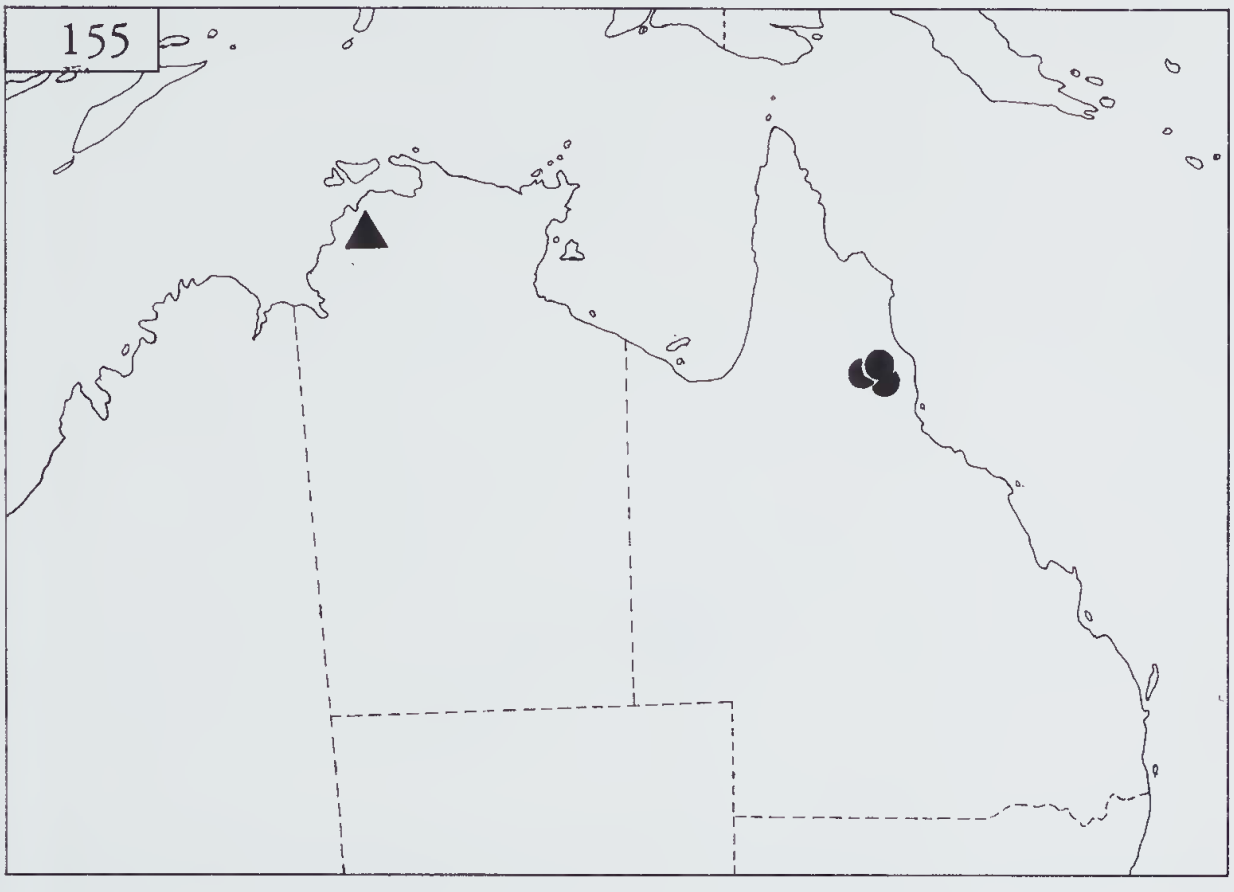


FIGURE 155. Distribution of *Haliplus hydei* (dots) and *Haliplus storeyi* (triangle).

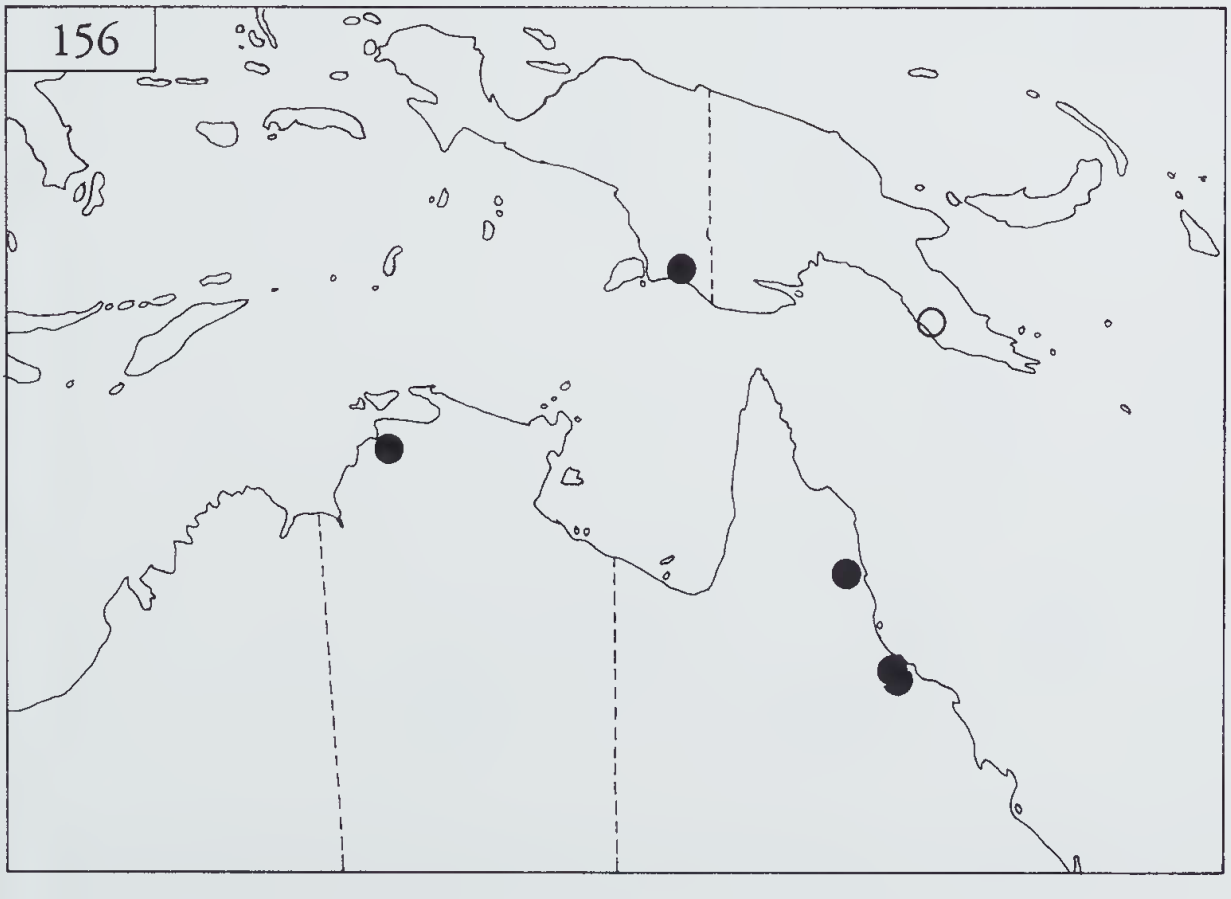


FIGURE 156. Distribution of *Haliplus ferruginipes*. (Dot: examined, circle: not examined type.)

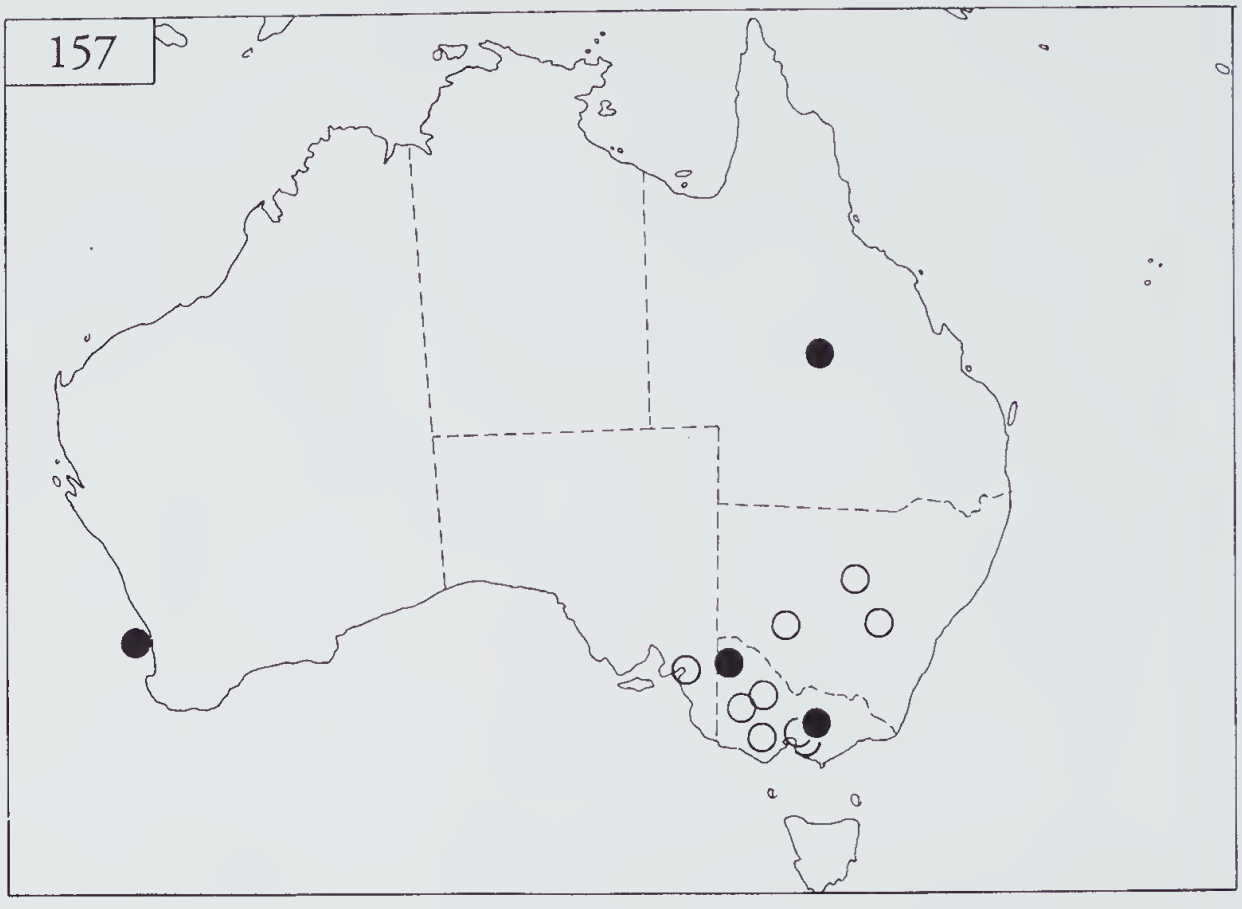


FIGURE 157. Distribution of *Haliplus fuscatus* (dots: males; circles: females of *H. fuscatus* or *H. gibbus*).

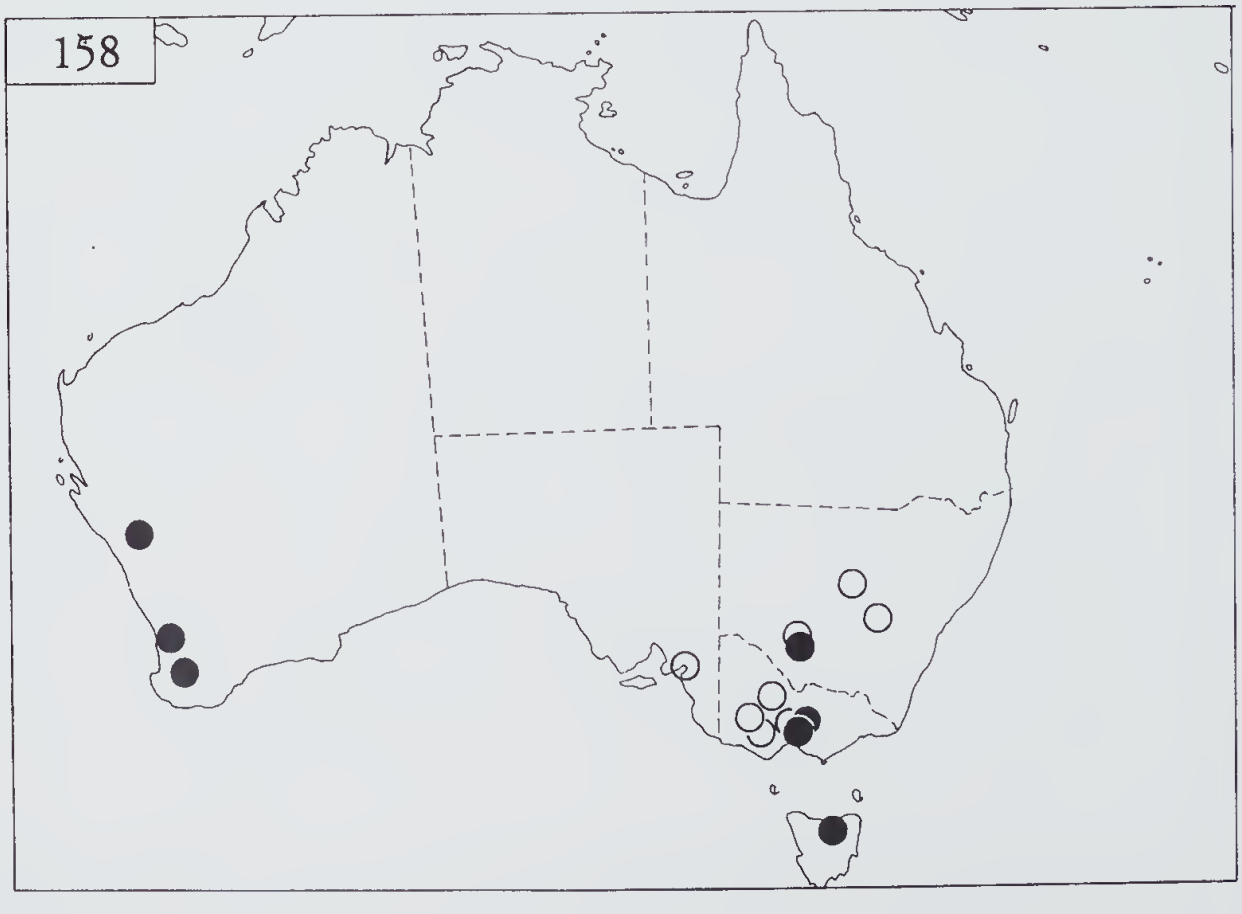


FIGURE 158. Distribution of *Haliplus gibbus* (dots: males; circles: females of *H. gibbus* or *H. fuscatus*).

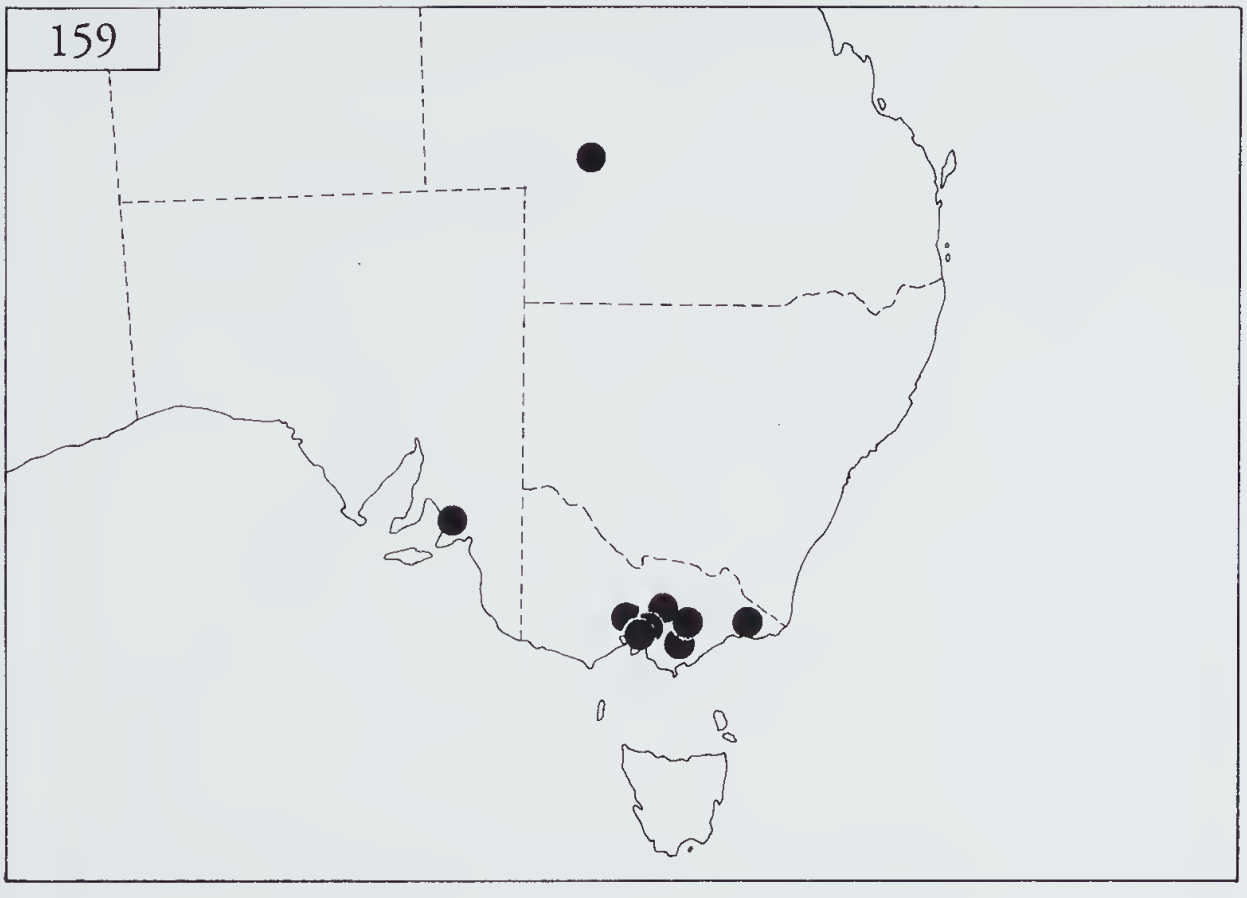


FIGURE 159. Distribution of *Haliplus australis*.

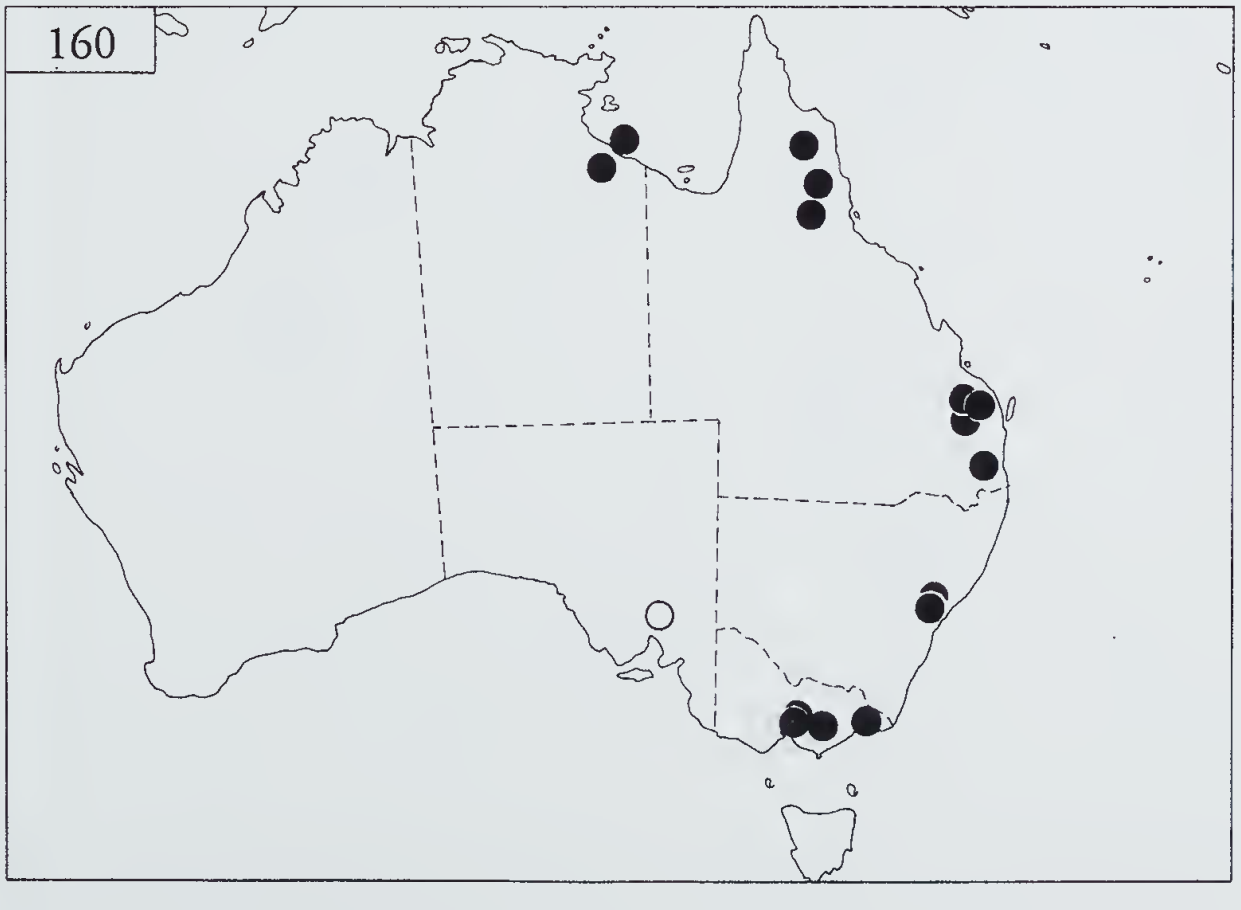


FIGURE 160. Distribution of *Haliplus testudo* (dots: locality known; circle: specific locality in S.A. unknown).

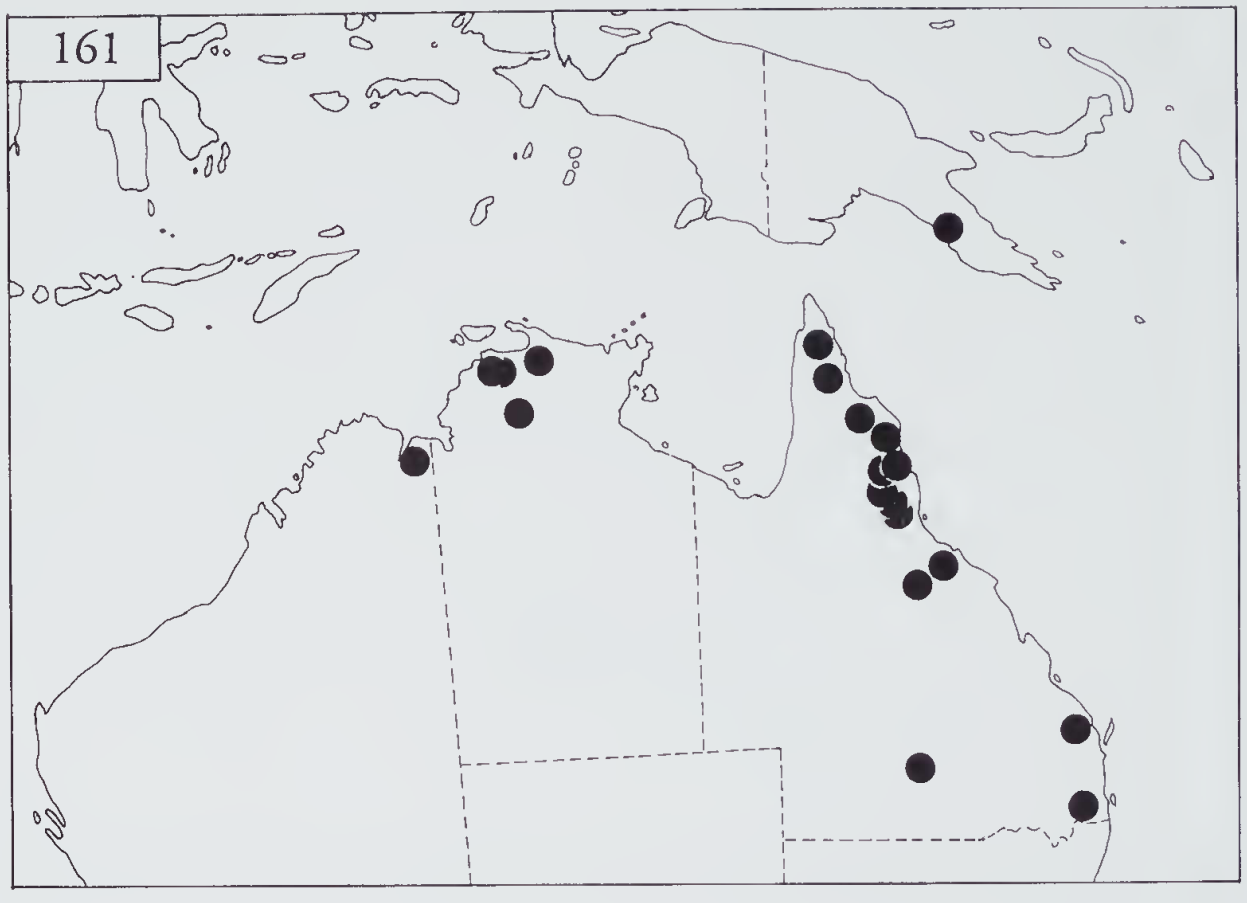


FIGURE 161. Distribution of *Haliplus wattsi*.

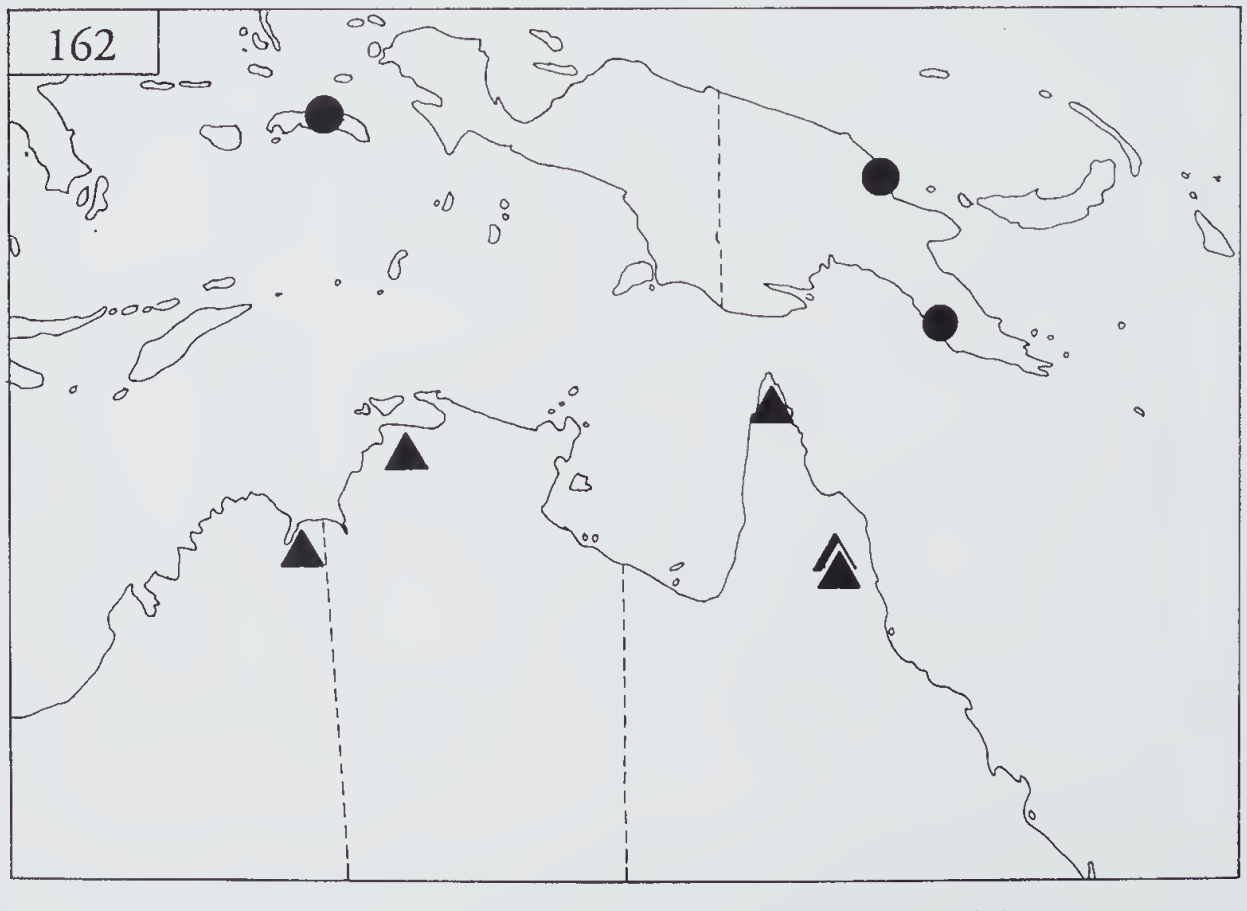


FIGURE 162. Distribution of *Haliplus signatipennis* (dots) and *Haliplus stepheni* (triangles).

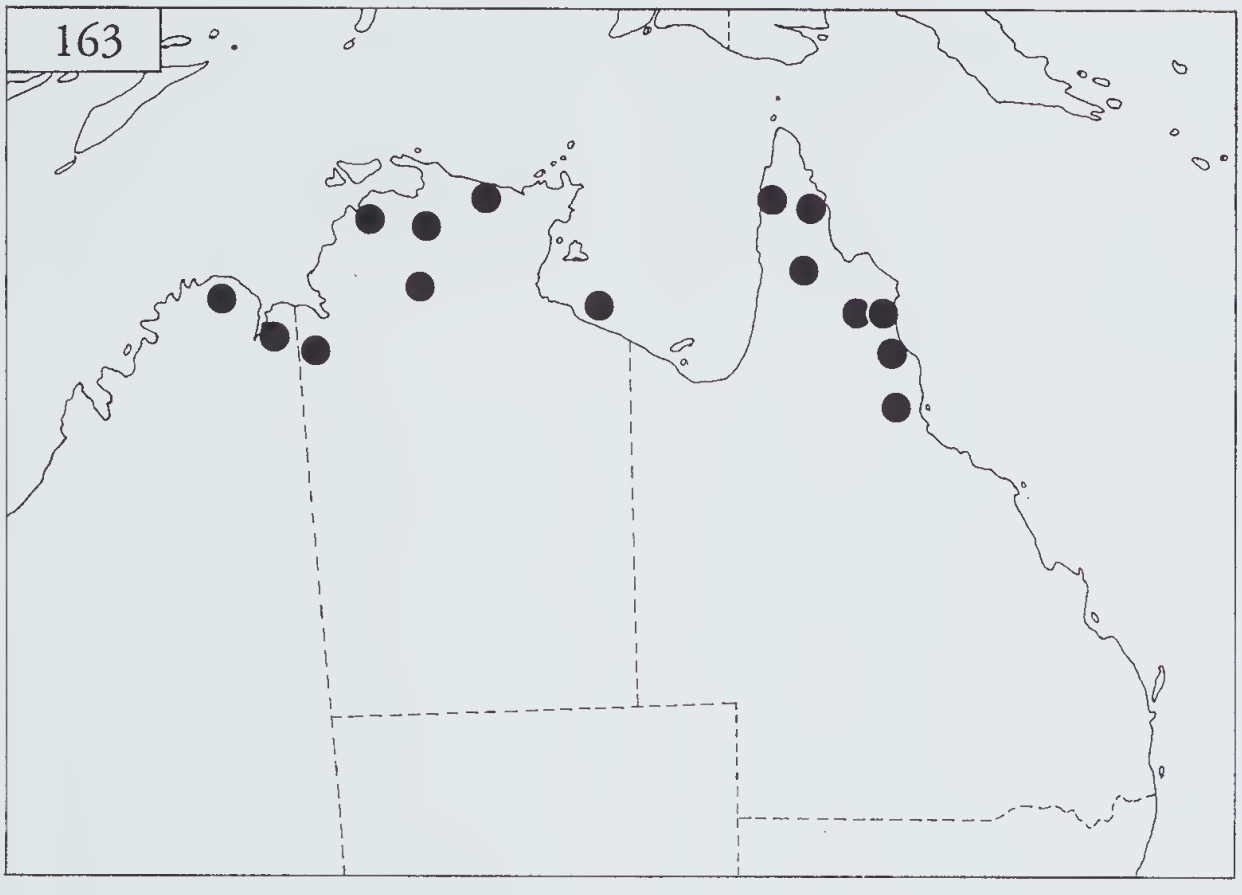


FIGURE 163. Distribution of *Haliplus alastairi*.

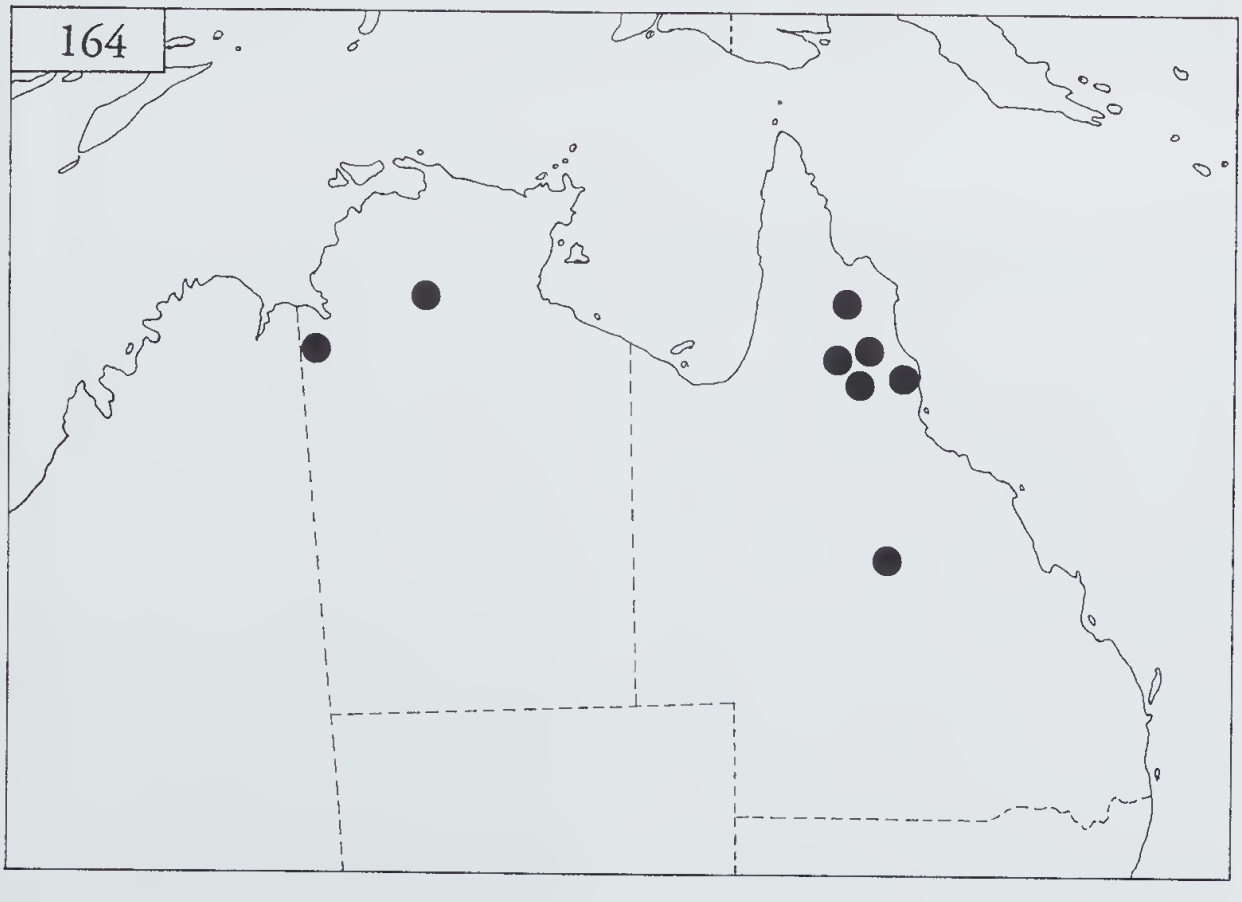


FIGURE 164. Distribution of *Haliplus timmsi*.

Elytra: Yellow to yellow-red. Primary punctures weak and sparse, row 1+2 not as strong as row 3–7, base of row 5 ending in transverse strong impression, about 25 punctures in row 1. Secondary punctures scattered and almost restricted to odd intervals, sutural row almost as strong, but not as dense as primary row 1 (Fig. 149). Punctures not darkened. Interval between puncture-row 8 and 9 slightly elevated in anterior part. Lateral sides margined and clearly serrate near shoulders and near apex.

Underside: Yellow to yellow-red, elytral epipleura yellow to yellow-red, legs yellow-red to yellow-brown, slightly darkened near coxae. Elytral epipleura reaching end of sternite 5. Prosternum completely margined anteriorly, not or hardly punctured. Prosternal process parallel-sided, slightly wider posteriorly, anterior edge margined, slightly impressed in posterior half, weakly punctured, stronger punctures in impression (Figs 151, 152). Mctasternal process hardly wider than prosternal process, clearly impressed anteriorly, moderately strongly punctured (Fig. 151). Metacoxal lobes reaching to end of sternite 4, sparsely punctured, punctures weaker towards suture. Sternite 5+6 with complete puncture-rows, sternite 7 completely, but sparsely punctured. Setiferous striole on dorsal face of hind tibia short, with about 3 punctures, both tibial spurs about 2/3x length of first tarsal segment (Fig. 150).

Male: unknown

Distribution (Fig. 153)

Only known from type localities in Queensland: Bentinck Island (holotype) and Homehill (unexamined paratype).

Material examined: Only holotype ♀.

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